ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

December 23, 2004

Certified Mail
7002 3150 0000 1220 5938

Commander
Rock Island Arsenal
Attn: SIORI-PWE (Charles Swynenberg)
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL52100221833
Log No. C-600-M-8
Received: February 27, 2003
RCRA Closure - Building 64

Dear Mr. Swynenberg:

The closure plan modification submitted by Rock Island Arsenal (RIA) and prepared by Daily & Associates, Engineers, Inc. has been reviewed by the Illinois EPA. This closure plan modification consist of a document, dated December 2002, entitled Site Investigation Report - Remedial Objectives Report. Your final closure plan to close the hazardous waste container (S01) storage, tank (S02) storage, and tank treatment (T01) units within Building 64 at the above referenced facility is hereby approved subject to the following conditions and modifications (it is understood that some of the requirements associated with these conditions and modifications may have been met):

1. This approval letter shall supersede the previous approval letter dated December 28, 1999.

2. Closure activities must be completed by July 1, 2005. When closure is complete the owner or operator must submit to the Illinois EPA certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at the Illinois EPA within sixty (60) days after closure, or by September 1, 2005. These dates may be revised pending review of submittals required below.

   The attached closure certification form must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of

each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Illinois EPA approves the facility's closure certification.

The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, a Closure Documentation Report which must be submitted which includes the following:

a. The volume of waste, waste residue and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

b. Scaled drawings showing the horizontal and vertical boundaries of the extent of any soil removal effort.

c. A description of the method of waste handling and transport.

d. The waste manifest numbers.

e. Copies of the waste manifests.

f. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include:

    1. identification of the reason for the sampling/analysis effort and the goals of the effort;

    2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

3. a scaled drawing showing the horizontal location from which all soil samples were collected;

4. identification of the depth and vertical interval from which each sample was collected;

5. a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

6. identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. A chronological summary of closure activities and the cost involved.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

3. RIA shall submit quarterly reports to the Illinois EPA which detail the progress that has been made (towards completing closure of Building 64) since the submittal of the previous report. The first quarterly report shall be submitted to the Illinois EPA by November 15,

1992. In addition, RIA shall notify the Illinois EPA in writing 15 days prior to implementation of the initial sampling activities at Building 64.

4. Quarterly groundwater monitoring of the following wells must continue until conclusion of the pilot study. The facility may at that time, submit a request to modify the current groundwater monitoring program or continue groundwater monitoring as described in the subject submittal.

Unconsolidated	Devonian	Silurian
B1S	B1D	B3DS
B3S	B3D	B6DS
B4S	B4D	B9DS
B6S	B5D	B10DS
B7S	B6D	B13DS
B9S	B7D	B21DS
B10S	B8D	B22DS
B11S	B10D	Deep Well 51
B13S	B11D	
B17S	B12D	
B18S	B13D	
B19S	B14D	
B20S	B15D	
B21S	B16D	

5. The following comments relate to the remedial objectives for the site:

   a. Due to the following the remedial objectives cannot be finalized at this time.

      i. It appears as though free product is likely to be present in the groundwater in the form of a DNAPL. If free product is present it will exceed the attenuation capacity of the soil. The requirements of 35 Ill. Adm. Code 742.305 a) would not be met.

      ii. The presence of media that exhibits the characteristic of hazardous wastes, as defined in 35 IAC Section 721, would not meet the requirements of 35 IAC 742.305 e).

      iii. The Illinois EPA cannot approve the use of 35 Ill. Adm. Code 742, TACO, Tier 2 for groundwater. The R26 equation cannot be utilized and is not appropriate to

model sites in fractured bedrock or karst settings because the dilution factor for groundwater does not adequately address such aquifer flow patterns. The facility may utilize Tier 3 for groundwater once all applicable requirements have been met under TACO. In order for the Illinois EPA to properly evaluate and approve the utilization of 35 Ill. Adm. Code Part 742, TACO the facility will be required to: (1) thoroughly address each criteria; (2) use site-specific parameters; and (3) submit copies of any calculations performed.

iv. The evaluation of the requirements of 35 Ill. Adm. Code 742.320 e) and f) need to consider the impacts from other sources located on the Island. Section 6.4 of the plan indicates that other sites on the Island have used prohibitions on groundwater use to obtain No Further Remediation Letters. If one or more of these sites have contamination that would contribute to the contaminant load to groundwater and/or eventually surface water, this impact would need to be factored into meeting the requirements of 35 Ill. Adm. Code 742.320 e) and f).

b. Although the extent of the contaminated soils at the site have been well characterized, additional data will most likely need to be collected in order to further refine ongoing remedial activities at the site.

c. RIA is proposing to perform in-situ treatment of media that exceeds the hazardous waste level, rather than removal/excavation of said media. This media includes sections of the concrete floor that are characteristically hazardous for cadmium and/or chromium as well as soil and groundwater. Should the proposed treatment system fail to adequately address the contamination, alternative remediation processes will need to be developed. Media that is characteristically hazardous will need to be removed or treated to a level such that it is no longer characteristically hazardous.

d. Additional details regarding the basic design of the proposed engineered barriers including, specification of material used, and upkeep/maintenance required to maintain their integrity must be provided to the Illinois EPA.

6. The following comments relate to the proposed in-situ treatment identified in Section 7 of the plan:

a. The Illinois EPA is concerned that the successful in-situ treatment of the contaminated concrete media may be difficult. If the in-situ treatment is not successful additional steps to remove the hazardous portions of the media will be required. Additional information will be required if RIA wishes to demonstrate that the removal of the hazardous media is impractical.

b. RIA must submit a completed "Class V Injection Well Inventory Form" for the proposed injection system prior to its construction.

c. RIA should provide an estimate of the length of time that the remediation will take to be completed.

d. Upon conclusion of the pilot study, the facility must provide to the Illinois EPA the results of the pilot test. The report must include, but need not be limited to the following:

i. Analytical results from initial sampling and subsequent sampling of the injection and observation wells;

ii. Historic to current analytical quarterly groundwater monitoring data of all wells, including Deep Well #51 (summarized);

iii. Historic and current potentiometric maps;

iv. Isoconcentric maps prior to and after the pilot study; and

v. Interpretation of the results of the pilot study and recommendations.

This report should include information, as appropriate, that is identified in the Illinois EPA's guidance document entitled, "Information Which Should be Provided to IEPA in Support of Bioremediation for RCRA Closures (November 1994)." A copy of this document is attached. This report should also address the method proposed for the treatment of the cyanide that will be conducted in the second phase of the bioremediation.

7. The facility shall submit boring logs, construction diagrams and data sheets from installation and development of the new wells to the Illinois EPA at the address below within thirty (30) days of the date that the installation of the well is completed.

Illinois Environmental Protection Agency
Bureau of Land
Waste Reduction And Compliance Section
Post Office Box 19276
Springfield, Illinois 62794-9276

8. The tank surfaces, ancillary equipment and the concrete surfaces including the secondary containment systems, and sumps shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping, brushing, etc. Following this, the

surfaces and the tanks' associated piping and equipment must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in Test Methods for Evaluating Solid Wastes, Third Edition (SW-846), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibit a characteristic of hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

9. After cleaning the concrete surfaces as identified in Condition 8 above, an independent registered professional engineer shall inspect the integrity of the concrete surfaces. These surfaces shall be inspected for cracks or deterioration which penetrate through the concrete. In addition, all construction joints must be inspected to ensure that they are water tight. The results of this inspection shall be (1) submitted in the form of a report, and (2) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) conclusions reached regarding any cracks or construction joints observed in the areas of concern, (3) justification of the conclusions reached (e.g. information must be provided which indicates that any construction joints in the areas of concern are indeed water tight), and (4) photographs to support the conclusions reached. RIA must submit on or before April 1, 2000. Additional soil sampling may be required as a result of the information provided in this report.

10. The following procedure must be utilized in the collection of all required soil samples:

    a. The procedures used to collect the soil samples must be sufficient so that all soil encountered is classified in accordance with ASTM Method D-2488.

    b. If a drill rig or similar piece of equipment is necessary to collect required soil samples, then:

        1. the procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples;

        2. Soil samples must be collected continuously at several locations to provide information regarding the shallow geology of the area where the investigation is being conducted;

    c. Soil samples not collected explicitly for VOC analysis should be field-screened for the presence of VOCs;

d. All soil samples which will be analyzed for volatile organic compounds must be collected in accordance with Attachment 7 of the Illinois EPA's RCRA closure plan instructions;

e. All other soil samples must be collected in accordance with the procedures set forth in SW-846;

f. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination.

11. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts.

12. All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with Test Methods for Evaluating Solid Wastes, Third Edition (SW-846). When a SW-846 (Third Edition) analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Illinois EPA. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter in the third edition of SW-846. For inorganic parameters, the detection limit must be at least as low as the RCRA Groundwater Detection Limits, as referenced in SW-846 (Third Edition) Volume 1A, pages TWO-29 and TWO-30, Table 2-15. If possible, your sampling program should be extensive enough to determine the lateral and vertical extent of contamination to the detection limit (PQLs) referenced above. Soil sample should be analyzed using the following methods:

Constituent	SW-846 Analytical Method
- Cadmium	6010 or 6020 (total) & 1311 (TCLP)
- Chromium	6010 or 6020 (total) & 1311 (TCLP)
- Chromium, hexavalent	3060/7196
- Copper	6010 (total) & 1311 (TCLP)
- Nickel	6010 (total) & 1311 (TCLP)
- Zinc	6010 (total) & 1311 (TCLP)
- Cyanide	9010 or 9012 (total)
- Soil pH	9040B or 9045C
- 1,1-dichloroethane	8260

-	1,1,1-trichloroethane	8260
-	1,2-dichloroethane	8260
-	trichloroethene	8260
-	vinyl chloride	8260

13. All waste generated as a result of closure activities must be handled as hazardous waste until it is determined (in accordance with 35 IAC 722.111) to be otherwise. Pulverization of hazardous waste would be considered to be treatment of hazardous waste and could not be done with out appropriate treatment permits.

14. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established cleanup objectives.

15. If removal and off-site disposal is the remedial action chosen for any soil contamination found, then additional soil should be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation from which contaminated soil was removed. This sampling analysis effort is necessary to demonstrate that the remaining soil meets the established cleanup objectives.

    a. A grid system as set forth in Section 13.b of the Illinois EPA's closure plan instructions must be established over the excavation.

    b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

    c. Samples must be collected 6"-12" below the ground surface at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

    d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

    e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 7 of the Illinois EPA's RCRA closure plan instructions. In addition, such samples must be collected 6"-12" beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

f. No random sampling shall be conducted to verify that the cleanup objectives have been met.

16. Reports documenting soil sampling events and analytical results shall include at a minimum the following:

a. identification of the reason for the sampling/analysis effort and the goals of the effort;

b. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

c. a scaled drawing showing the horizontal location from which all soil samples were collected;

d. identification of the depth and vertical interval from which each sample was collected;

e. a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

f. identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

g. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

h. visual classification of each soil sample in accordance with ASTM D-2488;

i. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

j. a discussion of the data, is it related to the overall goal of the sampling/analysis effort.

17. The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

18. All waste which is generated as a result of closure activities must be evaluated to determine if it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C or if it is a listed hazardous waste as set forth in 35 IAC 721, Subpart D.

a. If the soil is determined to be a hazardous waste, then it must be managed in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

b. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

19. All references to the "Illinois EPA's RCRA closure plan instructions" refer to the document entitled Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities, December 11, 1990.

20. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code, Section 725.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.

21. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

22. If clean closure cannot be achieved pursuant to 35 IAC 725.297a then a modified closure plan and a post-closure plan prepared pursuant to 35 IAC Section 725.297b must be submitted to the Illinois EPA for review and approval within 60 days of such a determination.

23. 35 IAC 721.131 F001 through F005 wastes must be disposed in accordance with 35 IAC Part 728.

24. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile

units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

25. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

26. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Illinois EPA by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Illinois EPA by contacting:

    Annual Reports & Data Collection Unit
    Illinois Environmental Protection Agency
    2200 Churchill Road
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Within 35 days after the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding the groundwater aspects of this project, please contact Paula Stine at 217/524-3861; questions regarding other aspects of this project should be directed to Kevin D. Lesko at 217/524-3271.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KDL:bjh\04101s.doc

Attachments: Closure Certification Form
Closure Certification Statement LPC-PA18
UIC Class V Injection Well Inventory Form
Information Which Should be Provided to IEPA in Support of Bioremediation for RCRA Closures (November 1994)

cc: USEPA Region V -- Harriet Croke
Daily & Associates, Engineers, Inc. -- Patrick G. Sloan, P.E.

INFORMATION WHICH SHOULD BE PROVIDED TO IEPA IN SUPPORT OF BIOREMEDIATION FOR RCRA CLOSURES (November 1994)

This document has been developed to identify the information which should be provided to the Agency if a facility involved in RCRA closure or RCRA corrective action desires to use bioremediation to address soil and/or groundwater contamination. The Agency feels that the information identified in this document is vital to the development of a bioremediation system. Thus, compilation and evaluation of such information is necessary for successful use of bioremediation. Excellent sources of information regarding bioremediation are USEPA documents entitled Bioremediation of Contaminated Surface Soils, EPA600/9-89/073, April 1989 and Seminars, Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation (EPA/600/K-93/002).

Before a facility implements a remedial activity which utilizes bioremediation, a report should be developed and submitted to the Agency for review and approval regarding the proposed bioremediation system. This report should contain the following information:

1. An adequate characterization of the contamination present at the site. This includes:

   a. Identification of the contaminants at the site;

   b. The horizontal and vertical extent of contamination (including scaled drawings);

   c. The distribution of contamination within the contaminated area, including a discussion of the concentration of contaminants within the area;

   d. An evaluation of the biodegradability of the contaminants present. Copies of articles discussing this issue should be provided, if they are relied upon. A minimum of 3 references should be provided indicating that the contaminants can be bioremediated.

      References made to the sources of information relied upon should be made in accordance with procedures typically associated with the development of research papers, term papers and technical papers submitted for publication. In addition, the exact page on which the information of interest appears must be identified. (This detailed discussion related to identifying sources of information is necessary so that the Agency can easily review the information which was used in the evaluation)

2. Results of a in-situ soil gas survey in which the concentration of oxygen, carbon dioxide and contaminants in the soil gas is evaluated. Such a

survey provides information related to the amount of oxygen which must be injected into the soil, the relative amount of biodegradation occurring in the soil and the relative amount of volatile contaminants present in the soil.

3. An adequate characterization of the geology and hydrogeology of the contaminated area, including:

   NOTE: The information identified in Items a-e below should be obtained based upon a review of available information from such entities as the Illinois State Water Survey and Geologic Survey, the IEPA, local county and municipal records, facility files from previous subsurface investigations (including structural foundation investigations).

   a. A discussion of the geography and geology of the area within 1 mile of the facility and of the facility itself. Of special concern is the stratigraphy, lithology and hydrogeology of each unit between the ground surface and the first bedrock aquitard;

   b. Identification of any "Class 1 aquifers" (as generally defined in 35 IAC 620) beneath the area being remediated, including information related to the properties of the unit;

   c. Identification of any private water supply well within a one mile radius of the facility. A scaled map showing the location of these wells should be provided, along with actual logs and documentation of the efforts made to obtain this information;

   d. Identification of any public water supply well within a two mile radius of the facility. A scaled map showing the location of these wells should be provided, along with actual logs and documentation of the efforts made to obtain this information;

   e. An identification of the geologic units from which the wells identified above obtain their water and an indication of whether the units contain groundwater subject to the Class 1 standards in 35 IAC 620;

   f. Information related to each geologic unit containing contaminated soil and/or groundwater, including:

      1. Soil type (based on the Unified Soil Classification System);

      2. Grain size distribution;

      3. Atterberg limits and clay content;

      4. Organic matter content;

      5. Permeability;

      6. Bulk density;

7. Porosity, water content and degree of saturation;

8. Information specific to bioremedial needs, including:

a. soil pH;

b. available soil water;

c. oxygen concentration; (4) redox potential; (5) nutrient concentration; and (6) temperature.

g. Depth to water table, including seasonal variations and depth to aquitards;

h. Groundwater flow direction;

i. Additional information should be provided if it has been determined that contamination has extended groundwater and that groundwater will also be bioremediated. Among other things, this should include information (with supporting data and calculations) regarding proper characterization of the saturated unit, proper characterization of the groundwater contamination, procedures for remediating the groundwater contamination, procedures for controlling groundwater flow so that contamination cannot spread during the remediation effort and the information identified in this document relative to the actual remediation effort.

4. Information regarding the microorganisms which will be used to bio-remediate the contamination.

a. If indigenous microorganisms are to be used, then:

1. The types of microorganisms present in the subsurface should be identified, as well as their population density. This will require that samples be collected and evaluated;

2. A discussion should be provided regarding the characteristics, needs and capabilities of the microorganisms when used for bioremediation;

b. If "cultured" microbes are to be used, then the following information should be provided:

1. Justification for the choice of the microbes;

2. A description of how the microbes are cultured;

3. A discussion should be provided regarding the characteristics, needs and capabilities of the microorganisms when used for bioremediation;

4. A description of the system which will be used to inject the microorganisms into the contaminated area so that a uniform population will be established over the area;

5. Documentation that the microbes are not pathogenic.

5. Information relative to the biodegradation process being relied upon including:

   a. An estimate of the rate at which biodegradation of the contaminants by the selected microbes will occur;

   b. An estimate of the time which will be necessary for remediation to be completed;

   c. Identification of whether the contaminants will be used by the microorganisms as a primary substrate or a secondary substrate (i.e., a cometabolite). If a contaminant is expected to be a cometabilite, then information should be provided regarding the primary substrate which will be used and the system which will be used to make that substrate available.

   d. Results of an in-situ respiration test (a pilot-scale insitu test in which the oxygen, carbon dioxide and contaminant concentration in soil gas is monitored over time). This test will provide an indication of the rate at which biodegradation of the contaminants can be expected to occur.

6. An evaluation of the possible presence of toxins which would inhibit bioremediation, including an evaluation of whether the existing contaminant concentration will impede or prevent biological activity from occurring.

7. A determination of any potential adverse geochemical or biological reactions which may occur during bioremediation, including adverse products or by-products of biodegradation of the contaminants. If such adverse reactions are expected, then a discussion should be provided regarding the procedures which will be used to prevent them from occurring;

8. Results of all lab and field studies conducted in the collection of data necessary to design the bioremediation system, including:

   a. Information regarding sample collection, preservation and lab analysis;

   b. An identification and discussion of the results of the tests, such as rate of biodegradation, nutrient needs, oxygen needs, etc. The actual data collected during the tests must also be provided as well as sample calculations indicating how the final results were obtained from the collected data.

9. If aerobic microbes are to be used:

   a. Identification of the optimal oxygen level which should be maintained;

   b. Calculation regarding the amount of oxygen which must be provided to the microbes;

c. A detailed description of the system which will be used to provide oxygen to the microbes. This must include:

1. Identification of the level of oxygen which will be maintained;

2. The rate at which it will be applied to the contaminated area;

3. A detailed description of the system which will be used to inject the oxygen into the contaminated area;

4. A demonstration that the system will provide for a relatively uniform distribution of nutrients over the contaminated area.

5. A discussion of the procedures which will be used to ensure that the desired oxygen levels are present throughout the contaminated area.

d. If hydrogen peroxide is to be used, then the results of a stability test must be provided. This test should determine if phosphate pretreatment of the area is necessary to precipitate any iron present, as iron would catalyze hydrogen peroxide decomposition before it could be used as a source of oxygen.

10. Information regarding the procedures which will be utilized to provide the microbes with necessary nutrients. This should include:

a. Identification of the nutrients which must be provided to the microbes, including if necessary, water;

b. Calculations identifying the amount of nutrients which are necessary for optimal growth of the microbes;

c. A detailed description of the system which will be used to provide nutrients to the microbes. This must include:

1. A description of the solution which will be used;

2. The rate at which it will be applied to the contaminated area;

3. A detailed description of the system which will be used to inject the solution into the contaminated area;

4. A demonstration that the system will provide for a relatively uniform distribution of nutrients over the contaminated area.

11. Characterization and evaluation of the pathways through which contamination may migrate away from the area while the remediation is taking place (such as leaching).

12. Characterization and evaluation other available potential removal mechanisms which could be used to remediate the contamination at the facility (such as vapor extraction).

13. A description of the procedures which will be used to ensure that the installed bioremediation system is operating as designed. This will require a variety of daily, weekly, monthly, quarterly and annual evaluations of the system.

14. A description of the procedures which will be used to demonstrate that remediation of the area is complete.

JM:lo/0626W/1-6sp

ATTACHMENT

CLOSURE CERTIFICATION STATEMENT
Rock Island Arsenal
Closure Log C-600

This statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 Ill. Adm. Code 702.126) and by an independent licensed professional engineer upon completion of closure. Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste container (S01) storage, tank (S02) storage, and tank treatment (T01) units within Building 64 have been closed in accordance with the specifications in the approved closure plan. A report documenting that closure has been carried out in accordance with the approved plan is attached.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner/Operator Responsible Officer — Date	Name and Title of Owner/Operator Responsible Officer
Signature of Licensed P.E. — Date	Name of Licensed P.E. and Illinois License Number
Mailing Address of P.E.:	Licensed P.E.'s Seal:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

USE OF RCRA INTERIM STATUS CLOSURE AND POST-CLOSURE CARE PLANS GENERAL FORM

LPC-PA18

Attached is a general form which must be included with all RCRA interim status closure plans, post-closure plans and modification requests of such plans submitted after January 1, 1993. This form contains general information related to the facility involved in RCRA closure and/or post-closure activities which will allow the Agency to process such plans more efficiently. In addition, it will also provide the facility undergoing closure with a mechanism for providing the necessary certification for such submittals.

The LPC-PA18 form should be attached to the cover letter which transmits any document associated with RCRA closure or post-closure to the Agency. If desired, it can be directly incorporated into any report which is being submitted in lieu of being attached to the cover letter. However, if it is placed in a report, it must appear directly after the Table of Contents, so that it is easily accessible to Agency personnel.

The Agency reserves the right to return any RCRA closure plan, post-closure plan, or modification request submitted after January 1, 1993 which is not accompanied by the LPC-PA18 form.

The form should be self-explanatory as it relates to the information which should be provided. However, if you have any questions regarding the use of this form, please contact anyone in the Corrective Action Unit of the Permit Section at 217/524-3300.

(November 1992)

JM:jab\002712p.doc

IL 532-2106
LPC 464 2/2004

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

RCRA INTERIM STATUS CLOSURE AND POST-CLOSURE CARE PLANS GENERAL FORM
LPC-PA18

THIS FORM MUST ACCOMPANY ANY RCRA INTERIM-STATUS CLOSURE AND/OR POST-CLOSURE CARE PLANS OR MODIFICATION REQUEST SUBMITTED TO THE DIVISION OF LAND POLLUTION CONTROL. THE ORIGINAL AND TWO COPIES OF ALL DOCUMENTS SUBMITTED MUST BE PROVIDED.

FACILITY IDENTIFICATION (Information about the facility where the units are located which are addressed in this closure plan submittal)

Name: _____ County: _____

Street Address: _____ Site # (IEPA): _____

City: _____ Site No. (USEPA): _____

OWNER INFORMATION	OPERATOR INFORMATION
Name: _____	_____
Mailing Address: _____	_____
_____	_____
_____	_____
Contact Name: _____	_____
Contact Title: _____	_____
Phone #: _____	_____

TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

_____ Original (New) Closure Plan

_____ Original (New) Post-Closure Plan

_____ Response to Disapproval letter

_____ Modification Request

Log No. of Most Recent Agency Approval/Disapproval Letter _____

Date of Most Recent Agency Approval/Disapproval Letter _____

_____ Additional Information for ___ / ___ / ___ Submittal (Log No. _____ if known)

Does this submittal contain groundwater information: _____ Yes; _____ No

(IF YES, PLEASE INCLUDE ONE ADDITIONAL COPY OF SUBMITTAL)

DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted)

_____

_____

LIST OF DOCUMENTS SUBMITTED (identify all documents in this submittal, including the cover letter)

_____

_____

IL 532-2106
LPC 464 Rev. 02/04

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

UNITS UNDERGOING CLOSURE (please identify what type of units are addressed in the plan, their capacities and whether they are on the RCRA Part A for the facility)

Unit	Unit Code	Number of Units Closing	Capacity	On Part A (Y/N)
Storage:				
Container (barrel, drum, etc.)	S01			
Tank	S02			
Waste Pile	S03			
Surface Impoundment	S04			
Treatment:				
Tank	T01			
Surface Impoundment	T02			
Incinerator	T03			
Other (explain)	T04			
Disposal:				
Landfill	D80			
Land Application	D81			
Surface Impoundment	D83			

CERTIFICATION AND SIGNATURE (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126. Any submittal involving engineering plans, specifications and calculations as defined in the Illinois Professional Engineering Practice Act (225 ILCS 325) and 68 Ill. Adm. Code 1380 must be signed and certified by an Illinois licensed professional engineer.)

All closure plans, post-closure plans and modifications must be signed by the person representing the owner/operator designated below or by a duly authorized representative of that person:

1. If the owner/operator is a Corporation - By a principal executive officer of at least the level of vice-president.
2. If the owner/operator is a Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively.
3. If the owner/operator is a Government - By either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. *is submitted with this application (a copy of a previously submitted authorization can be used).*

CERTIFICATION STATEMENT - I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Signature: _____ Date)

Title: _____

Operator Signature: _____ (Date)

Title: _____

Engineer Signature: _____
(if necessary) (Date)

Engineer Name: _____ Engineer Seal:

Engineer Address: _____

_____

_____

Engineer Phone No.: _____

JM:bjh\97763p.doc

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

DIVISION OF LAND POLLUTION CONTROL

CLASS V INJECTION WELL INVENTORY FORM

INSTRUCTIONS FOR COMPLETING THIS FORM:

1. Provide the date the form was prepared.

2. Provide the name of the county where the well is located.

3. Provide the name and address of the person preparing this form.

4. Provide the IEPA Site Number for the facility. If a Site Number has not been assigned, check the box and provide the name of the township where the well is located. Other permit numbers or incident numbers should be listed in the comment section of the inventory form.

5. Provide the appropriate facility transaction.

   A. First time entry - use the first time the facility reports a specific type of Class V well.

   B. Modify entry - use any time there is a change in the information previously provided in Sections 5, 6, 7, 8, and/or 10 of this form.

6. Provide the name of the facility, name of the facility contact, and the facility address. Please note if the well(s) are located at another address and provide the street address for the well(s) in the comment section.

7. Provide the name of the facility's legal owner. Also insert the owner's company and organization, telephone number, name, and address. If the well is at a private residence enter "Private" for organization's name.

8. Mark the appropriate box to indicate the ownership of the well.

9. Provide a description of the injection fluid. Mark the appropriate box indicating whether the injection fluid is generated on-site or off-site. If the fluid is generated off-site, provide the name and address of the facility where the fluid is generated.

10. Provide the distance (in feet) to the closest drinking water well. If the distance is 200' or less, provide the date of completion of the drinking water well. Indicate whether the drinking water well is public or private.

11. Provide the well code(s), total number of wells in each code(s), well status, well location, and well transaction.

   A. Well Code(s) - refer to the attached list of Class V well types for the appropriate code(s).

   B. Total Wells this Code - indicate the total number of wells for each well code indicated at this facility.

C. Well Status - insert the appropriate code, as indicated below.

UC = under construction
AC = active
TA = temporarily abandoned
PA = permenantly abandoned

The date and method of plugging should be included for all permanently abandoned wells.

D. Well location - Provide the Latitude and Longitude of the well(s).

E. Well Transaction - Provide the appropriate code, as indicated below.

A = add, first time well has been reported
B = correction of previously sbmitted information
S = change in well status
T = change in well type permit

12. Provide other permit numbers or incident numbers assigned to the facility in the comment section. In addition, the street address for the well(s) should be listed in the comment section if the well(s) is not at the facility address.

Signatories to Inventory Form

All inventory forms, and any accompanying information, shall be signed by the well owner, and operator, if there is a separate well operator.

Submit the completed form to:

Illinois Environmental Protection Agency
Division of Land Pollution Control - #24
Planning and Reporting Section
2200 Churchill Road
P.O. Box 19276
Springfield, Illinois 62794-9276

BL:sf/sp/1611n,1-2

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
CLASS V INJECTION WELL INVENTORY FORM

1. Date Prepared: _____ 2. County: _____

3. Prepared by: _____

Company/Agency: _____

Phone Number: _____

4. IEPA Site Number: _ _ _ _ _ _ _ _ _ _ _ _

/ / check here if a number has not been previously assigned by the Division of Land Pollution Control and provide

the township name _____.

5. Facility Transaction:

/ / First Time Entry / / Modify Entry

6. Facility Name: _____

Facility Contact: _____

Facility Phone Number: ( ) _____

Facility Address: _____
(Street or Route number)

_____
(City or Town)

_____
(State & Zip Code)

7. Owner: _____
Last First MI

Owner's Organization: _____

Owner's phone number: ( ) _____

Owner's address: _____
(Street or Route number)

_____
(City or Town)

_____
(State & Zip Code)

8. Ownership: / / Private / / Public / / State / / Federal

/ / other (specify) _____

IL 532 2043
LPC 443 10/91

This Agency is authorized to require this information under Ill. Rev. Stat., 1979, Chapter 111 1/2 Section 1039. Disclosure of this information is required and failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

9. Injection Fluid Information:

Description of Fluid _____

Is all of the fluid to be injected generated at this facility?

/__/ Yes /__/ No

If no, indicate the name and address of the facility(s) where the fluid is generated _____

_____

10. Distance to closest drink water well (in feet) _____.

If distance is 200 feet or less, please include the date of completion of the drinking water well _____.

Ownership of drinking water well: /__/ Public /__/ Private

11. Well Information:

A. Well Code	B. Total Wells this code	C. Well Status	D. Well Location Latitude DEG MIN SEC	D. Well Location Longitude DEG MIN SEC	E. Well Transaction

12. Comments (optional): _____

_____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner: _____ Date _____

Operator: _____ Date _____

TABLE 1

CLASS V INJECTION WELL TYPES

WELL CODE	NAME OF WELL TYPE AND DESCRIPTION
	MINERAL AND FOSSIL FUEL RECOVERY RELATED WELLS
5X13	Mining, Sand, or Other Backfill Wells - used to inject a mixture of water and sand, mill tailings, and other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not. Also includes special wells used to control mine fires and acid mine drainage wells.
5X14	Solution Mining Wells - used for in-situ solution mining in conventional mines, such as stopes leaching.
5X15	In-situ Fossil Fuel Recovery Wells - used for in-situ recovery of coal, lignite, oil shale, and tar sands.
5X16	Spent-Brine Return Flow Wells - used to reinject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts.
	INDUSTRIAL/COMMERCIAL/UTILITY DISPOSAL WELLS
5A19	Cooling Water Return Flow Wells - used to inject water which was used in a cooling process, both open and closed loop processes.
5W20	Industrial Process Water and Waste Disposal Wells - used to dispose of a wide variety of wastes and wastewaters from industrial, commercial, or utility processes. Industries include refineries, chemical plants, smelters, pharmaceutical plants, laundromats and dry cleaners, tanneries, carwashes, laboratories, etc. <u>Industry and waste stream must be specified</u> (e.g. Petroleum Storage Facility - storage tank condensation water; Electric Power Generation Plant - mixed waste stream of laboratory drainage, fireside water, and boiler blowdown; Car Wash - Mixed waste stream of detergent, oil and grease, and paved area washdown; Electroplating Industry - spent solvent wastes, etc.).
5X28	Automobile Service Station Disposal Wells - repair bay drains connected to a disposal well. Suspected of disposal of dangerous or toxic wastes.

TABLE 1

CLASS V INJECTION WELL TYPES (continued)

WELL CODE	NAME OF WELL TYPE AND DESCRIPTION
	OIL FIELD PRODUCTION WASTE DISPOSAL WELLS
5X17	Air Scrubber Waste Disposal Wells - inject wastes from air scrubbers used to remove sulfur from crude oil which is burned in steam generation for thermal oil recovery projects. (If injection is used directly for enhanced recovery and not just disposal it is a Class II well.)
5X18	Water Softener Regeneration Brine Disposal Wells - inject regeneration wastes from water softeners which are used to improve the quality of brines used for enhanced recovery. (If injection is used directly for enhanced recovery and not just disposal it is a Class II well.)
	MISCELLANEOUS WELLS
5X24	Radioactive Waste Disposal Wells - all radioactive waste disposal wells other than Class IV wells.
5X25	Experimental Technology Wells - wells used in experimental or unproven technologies such as pilot scale in-situ solution mining wells in previously mined areas.
5X26	Aquifer Remediation Related Wells - wells used to prevent, control, or remediate aquifer pollution, including but not limited to Superfund sites.
5X29	Abandoned Drinking Water Wells - used for disposal of waste.
5X27	Other Wells - any other unspecified Class V wells. <u>Well type and purpose and a description of the injected fluids must be specified</u>

BL:sf/sp/1611n,5-8

TABLE 1

CLASS V INJECTION WELL TYPES (continued)

WELL CODE	NAME OF WELL TYPE AND DESCRIPTION
	DRAINAGE WELLS (a.k.a. DRY WELLS)
5D1	Agricultural Drainage Wells - receive irrigation tailwaters, other field drainage, animal yard, feedlot or dairy runoff, etc.
5D2	Storm Water Drainage Wells - receive storm water runoff from paved areas, including parking lots, streets, residential subdivisions, building roofs, highways, etc.
5D3	Improved Sinkholes - receive storm water runoff from developments located in karst topographic areas.
5D4	Industrial Drainage Wells - wells located in industrial areas which primarily receive storm water runoff but are susceptible to spills, leaks, or other chemical discharges.
5G30	Special Drainage Wells - used for disposing water from sources other than direct precipitation. Four types were reported: landslide control drainage wells (Montana), potable water tank overflow drainage wells (Idaho), swimming pool drainage wells (Florida), and lake level control drainage wells (Florida).
	GEOTHERMAL REINJECTION WELLS
5A5	Electric Power Reinjection Wells - reinject geothermal fluids used to generate electric power - deep wells.
5A6	Direct Heat Reinjection Wells - reinject geothermal fluids used to provide heat for large buildings or developments - deep wells.
5A7	Heat Pump/Air Conditioning Return Flow Wells - reinject groundwater used to heat or cool a building in a heat pump system - shallow wells.
5A8	Groundwater Aquaculture Return Flow Wells - reinject groundwater or geothermal fluids used to support aquaculture. Non-geothermal aquaculture disposal wells are also included in this category (e.g. Marine aquariums in Hawaii use relatively cool sea water).

TABLE 1

CLASS V INJECTION WELL TYPES (continued)

WELL CODE	NAME OF WELL TYPE AND DESCRIPTION
	DOMESTIC WASTEWATER DISPOSAL WELLS
5W9	Untreated Sewage Waste Disposal Wells - receive raw sewage wastes from pumping trucks or other vehicles which collect such wastes from single or multiple sources. (No treatment)
5W10	Cesspools - including multiple dwelling, community, or regional cesspools, or other devices that receive wastes and which must have an open bottom and sometimes have perforated sides. Must serve greater than 20 persons per day if receiving solely sanitary wastes. (Settling of solids)
5W11	Septic Systems (Undifferentiated disposal method) - used to inject the waste or effluent from a multiple dwelling, business establishment, community, or regional business establishment septic tank. Must serve greater than 20 persons per day if receiving solely sanitary wastes. (Primary Treatment)
5W31	Septic Systems (Well Disposal Method) - examples of wells include actual wells, seepage pits, cavitettes, etc. The largest surface dimension is less than or equal to the depth dimension. Must serve greater than 20 persons per day if receiving solely sanitary wastes (Less treatment per square area than 5W32)
5W32	Septic Systems (Drainfield Disposal Method) - examples of drainfields include drain or tile lines, and trenches. Must serve more than 20 persons per day if receiving solely sanitary wastes. (More treatment per square area than 5W31)
5W12	Domestic Wastewater Treatment Plant Effluent Disposal Wells - dispose of treated sewage or domestic effluent from small package plants up to large municipal treatment plants. (Secondary or further treatment)
	RECHARGE WELLS
5R21	Aquifer Recharge Wells - used to recharge depleted aquifers and may inject fluids from a variety of sources such as lakes, streams, domestic wastewater treatment plants, other aquifers, etc.
5R22	Saline Water Intrusion Barrier Wells - used to inject water into fresh water aquifers to prevent intrusion of salt water into fresh water aquifers.
5R23	Subsidence Control Wells - used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with overdraft of fresh water and not used for the purpose of oil or natural gas production.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RCRA INTERIM STATUS CLOSURE AND POST-CLOSURE CARE PLANS GENERAL FORM
LPC-PA18

THIS FORM MUST ACCOMPANY ANY RCRA INTERIM-STATUS CLOSURE AND/OR POST-CLOSURE CARE PLANS OR MODIFICATION REQUEST SUBMITTED TO THE DIVISION OF LAND POLLUTION CONTROL. THE ORIGINAL AND TWO COPIES OF ALL DOCUMENTS SUBMITTED MUST BE PROVIDED.

FACILITY IDENTIFICATION (Information about the facility where the units are located which are addressed in this closure plan submittal)

Name: Rock Island Arsenal
County: Rock Island
Street Address: Building 64
Site # (IEPA): 1 6 1 8 1 3 0 0 0 1
City: Rock Island
Site No. (USEPA): IL5210022183

OWNER INFORMATION

Name: Department of the Army
Rock Island Arsenal
Mailing Address: Attn: SMCRI-CO
Rock Island, IL 61299-5000
Contact Name: Dr. David Foss
Contact Title: Division Chief, Environmental
Phone #: (309) 782-7855

OPERATOR INFORMATION

TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

___ Original (New) Closure Plan
___ Original (New) Post-Closure Plan
___ Response to Disapproval letter
X Modification Request
___ Additional Information for ___ / ___ / ___ Submittal (Log No. _____ if known)

Log No. of Most Recent Agency Approval/Disapproval Letter: C-600-M-5

Date of Most Recent Agency Approval/Disapproval Letter: Dec. 28, 1999

Does this submittal contain groundwater information: X Yes; ___ No
(IF YES, PLEASE INCLUDE ONE ADDITIONAL COPY OF SUBMITTAL)

RECEIVED
FEB 27 2003
IEPA-BOL
PERMIT SECTION

DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted)

Site Investigation Report, Remediation Objectives Report.

LIST OF DOCUMENTS SUBMITTED (identify all documents in this submittal, including the cover letter)

Cover Letter, LPC-PA18, Volumes I through V

UNITS UNDERGOING CLOSURE (please identify what type of units are addressed in the plan, their capacities and whether they are on the RCRA Part A for the facility)

Unit	Unit Code	Number of Units Closing	Capacity	On Part A (Y/N)
Storage:				
Container (barrel, drum, etc.)	S01	X		
Tank	S02	X		
Waste Pile	S03			
Surface Impoundment	S04			

UNITS UNDERGOING CLOSURE (continued)

Unit	Unit Code	Number of Units Closing	Capacity	On Part A (Y/N)
Treatment:				
Tank	T01	X		
Surface Impoundment	T02			
Incinerator	T03			
Other (explain)	T04			
Disposal:				
Landfill	D80			
Land Application	D81			
Surface Impoundment	D83			

CERTIFICATION AND SIGNATURE (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126. Any submittal involving engineering plans, specifications and calculations as defined in the Illinois Professional Engineering Practice Act (225 ILCS 325) and 68 Ill. Adm. Code 1380 must be signed and certified by an Illinois licensed professional engineer.)

All closure plans, post-closure plans and modifications must be signed by the person representing the owner/operator designated below or by a duly authorized representative of that person:

1. If the owner/operator is a Corporation - By a principal executive officer of at least the level of vice-president.
2. If the owner/operator is a Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively.
3. If the owner/operator is a Government - By either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. is submitted with this application (a copy of a previously submitted authorization can be used).

CERTIFICATION STATEMENT - I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Signature: _____ _____ (Date)

Title: Mike G. Mullins
Colonel, OD, Commanding

Operator Signature: _____ _____ Date)

Title: _____

Engineer Signature: Patrick G. Sloan 2-26-03
(if necessary) (Date)

Engineer Name: Patrick G. Sloan

Engineer Address: Daily & Associates, Engineers, Inc.
7500 N. Harker Drive
Peoria, IL 61615

Engineer Phone No.: (309) 691-5300

Engineer Seal:

PATRICK G. SLOAN
43444
REGISTERED
PROFESSIONAL
ENGINEER
OF

JM:bjh\977635.WPD

This Agency is authorized to require this information under Illinois Revised Statutes, 1979 Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

USEPA

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

December 28, 1999

CERTIFIED MAIL
P 344 335 471

Commander
Rock Island Arsenal
Attn: SMCRI-CO (Dr. David Foss)
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL52100221833
Log No. C-600-M-5
Received: September 28, 1999
RCRA Closure - Building 64

Dear Dr. Foss:

The closure plan modification submitted by Rock Island Arsenal (RIA) and prepared by Daily & Associates, Engineers, Inc. has been reviewed by the Illinois EPA. This closure plan modification consist of a document, dated August 2, 1999, entitled Plan for Sampling, Analysis and Developing Remedial Objectives. Your final closure plan to close the hazardous waste container (S01) storage, tank (S02) storage, and tank treatment (T01) units within Building 64 at the above referenced facility is hereby approved subject to the following conditions and modifications (it is understood that some of the requirements associated with these conditions and modifications may have been met):

1. This approval letter shall supersede the previous approval letter dated April 9, 1997.

2. Closure activities must be completed by July 1, 2000. When closure is complete the owner or operator must submit to the Illinois EPA certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at the Illinois EPA within sixty (60) days after closure, or by September 1, 2000. These dates may be revised pending review of the submittals required by conditions 9, 11 & 21 below.

The attached closure certification form must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Illinois EPA approves the facility's closure certification.

The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, a Closure Documentation Report which must be submitted which includes the following:

a. The volume of waste, waste residue and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

b. Scaled drawings showing the horizontal and vertical boundaries of the extent of any soil removal effort.

c. A description of the method of waste handling and transport.

d. The waste manifest numbers.

e. Copies of the waste manifests.

f. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include:

    1. identification of the reason for the sampling/analysis effort and the goals of the effort;

    2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

3. a scaled drawing showing the horizontal location from which all soil samples were collected;

4. identification of the depth and vertical interval from which each sample was collected;

5. a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

6. identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. A chronological summary of closure activities and the cost involved.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

3. RIA shall submit quarterly reports to the Agency which detail the progress that has been made (towards completing closure of Building 64) since the submittal of the previous report. The first quarterly report shall be submitted to the Agency by November 15, 1992. In addition, RIA shall notify the Agency in writing 15 days prior to implementation of the initial sampling activities at Building 64.

4. The proposed monitoring wells are adequate to determine if groundwater has been impacted due to operations at Building 64. However, if groundwater has been impacted above 35 Ill. Adm. Code 742, Tier 1 Groundwater Remediation Objectives, the Illinois EPA will require the installation of additional groundwater monitoring well(s) in order to delineate the extent of the contamination plume to Tier 1 objectives.

5. The facility shall submit boring logs, construction diagrams and data sheets from installation and development of the new wells to the Illinois EPA at the address below within thirty (30) days of the date that the installation of the well is completed.

   Illinois Environmental Protection Agency
   Bureau of Land
   Planning and Reporting
   Post Office Box 19276
   Springfield, Illinois 62794-9276

6. During the installation of groundwater monitoring wells information must be collected to determine the classification of groundwater in accordance with 35 Ill. Adm. Code Part 620. All supporting information (i.e., boring logs, water well logs, pump tests, etc.) must be contained in the report required by Condition 9 below.

7. The report required by Condition 9 below, must include site-specific information regarding geology beneath the site. The information must include at a minimum:

   a. A detailed description of geology beneath the site;

   b. Identification of the uppermost aquifer;

      I. The vertical and horizontal components of groundwater flow in the uppermost aquifer;

      ii. The hydraulic conductivity of the uppermost aquifer;

      iii. The vertical extent of the uppermost aquifer;

   c. Pertinent physical and chemical properties of the confining layer relative to the contaminants of concern which are expected to be present. Such as hydraulic conductivity, permeability, etc.

8. SW-846 Final Update III (December 1996), updated the analytical methods proposed in the subject submittal. The following updated methods must be utilized for sampling associated with monitoring the groundwater at the facility.

   a. Method 6010B, Inductively Coupled Plasma-Atomic Emission Spectrometry;

b. Method 3060A, Alkaline Digestion for Hexavalent Chromium;

c. Method 7196A, Chromium, Hexavalent (Colorimetric);

d. Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS); and

e. Method 9012A, Total and Amenable Cyanide: Automated Colorimetric, with Off-line Distillation.

f. Method 9010B, Total and Amenable Cyanide: Distillation.

9. The Remediation Objectives Report and Remedial Action Plan, in regards to investigation activities associated with groundwater, must include at a minimum:

a. A written description of the geologic information required by Condition 6 above;

b. A plan view map depicting locations of all soil borings and groundwater monitoring wells;

c. A groundwater flow map;

d. Two scaled geologic cross-sections normal to each other which contain Building 64 and geologic information required by Condition 4 above. In addition, the interval over which wells are screened must be identified;

e. Boring logs and groundwater monitoring well completion reports;

f. A summary of the laboratory analysis; and

g. A proposal for future activities.

10. The tank surfaces, ancillary equipment and the concrete surfaces including the secondary containment systems, and sumps shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping, brushing, etc. Following this, the surfaces and the tanks' associated piping and equipment must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in Test Methods for Evaluating Solid Wastes, Third Edition (SW-846), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibit a characteristic of hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

11. After cleaning the concrete surfaces as identified in Condition 10 above, an independent registered professional engineer shall inspect the integrity of the concrete surfaces. These surfaces shall be inspected for cracks or deterioration which penetrate through the concrete. In addition, all construction joints must be inspected to ensure that they are water tight. The results of this inspection shall be (1) submitted in the form of a report, and (2) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) conclusions reached regarding any cracks or construction joints observed in the areas of concern, (3) justification of the conclusions reached (e.g. information must be provided which indicates that any construction joints in the areas of concern are indeed water tight), and (4) photographs to support the conclusions reached. RIA must submit on or before April 1, 2000. Additional soil sampling may be required as a result of the information provided in this report.

12. The proposed sampling locations do not adequately address the investigation of the extent of the contamination in the western and southern wings of the building. The proposed sampling locations, also, do not adequately address the possible migration of contamination into the southern portion of the courtyard area of the building. 35 IAC 742.120 requires that the horizontal and vertical extent of the contamination be determined before TACO remedial objectives can begin to be developed. Therefore, a delay in determining the extent of the contamination will delay the development of cleanup objectives for the site. Additional soil samples should be obtained in order to fully delineate the horizontal and vertical extent of the contamination. Analysis of any samples that are taken to determine the extent of contamination must include all relevant analytical parameters.

13. The following procedure must be utilized in the collection of all required soil samples:

    a. The procedures used to collect the soil samples must be sufficient so that all soil encountered is classified in accordance with ASTM Method D-2488.

    b. If a drill rig or similar piece of equipment is necessary to collect required soil samples, then:

        1. the procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples.

        2. Soil samples must be collected continuously at several locations to provide information regarding the shallow geology of the area where the investigation is being conducted;

    c. Soil samples not collected explicitly for VOC analysis should be field-screened for the presence of VOCs;

    d. All soil samples which will be analyzed for volatile organic compounds must be collected in accordance with Attachment 7 of the Illinois EPA's RCRA closure plan instructions;

e. All other soil samples must be collected in accordance with the procedures set forth in SW-846;

f. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination.

14. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts.

15. All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with Test Methods for Evaluating Solid Wastes, Third Edition (SW-846). When a SW-846 (Third Edition) analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Illinois EPA. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter in the third edition of SW-846. For inorganic parameters, the detection limit must be at least as low as the RCRA Groundwater Detection Limits, as referenced in SW-846 (Third Edition) Volume 1A, pages TWO-29 and TWO-30, Table 2-15. If possible, your sampling program should be extensive enough to determine the lateral and vertical extent of contamination to the detection limit (PQLs) referenced above. Soil sample should be analyzed using the following methods:

Constituent	SW-846 Analytical Method
- Cadmium	6010 or 6020 (total) & 1311 (TCLP)
- Chromium	6010 or 6020 (total) & 1311 (TCLP)
- Chromium, hexavalent	3060/7196
- Copper	6010 (total) & 1311 (TCLP)
- Nickel	6010 (total) & 1311 (TCLP)
- Zinc	6010 (total) & 1311 (TCLP)
- Cyanide	9010 or 9012 (total)
- Soil pH	9040B or 9045C
- 1,1-dichloroethane	8260
- 1,1,1-trichloroethane	8260
- 1,2-dichloroethane	8260
- trichloroethene	8260
- vinyl chloride	8260

16. All waste generated as a result of closure activities must be handled as hazardous waste until it is determined (in accordance with 35 IAC 722.111) to be otherwise. Pulverization of hazardous waste would be considered to be treatment of hazardous waste and could not be done with out appropriate treatment permits.

17. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established cleanup objectives.

18. If removal and off-site disposal is the remedial action chosen for any soil contamination found, then additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation from which contaminated soil was removed. This sampling analysis effort necessary to demonstrate that the remaining soil meets the established cleanup objectives.

    a. A grid system as set forth in Section 13.b of the Illinois EPA's closure plan instructions must be established over the excavation.

    b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

    c. Samples must be collected 6"-12" below the ground surface at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

    d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

    e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 7 of the Illinois EPA's RCRA closure plan instructions. In addition, such samples must be collected 6"-12" beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

    f. No random sampling shall be conducted to verify that the cleanup objectives have been met.

19. If RIA determines that soil excavation and off-site disposal is not the preferred remedial action for this closure, then the Illinois EPA must be notified in writing when such a determination is made. At that time, the Illinois EPA will provide RIA with additional guidance regarding the information which must be submitted to the Illinois EPA for review and approval relative to the alternative remedial action which the facility would like to implement.

20. Excavated soils may not be returned to the test pits if there is any sign of visible contamination, or if field screening with an appropriate device (e.g., photo ionization detector, flame ionization detector, etc.) detects the presence of volatile organic compounds. If contamination is detected the material must be handled as a hazardous waste until demonstrated to be otherwise.

21. A report documenting the sampling and analytical results, including a summary of the results, and a scaled drawing showing sample locations must be submitted to the Illinois EPA on or before April 1, 2000. This report must include:

    a. identification of the reason for the sampling/analysis effort and the goals of the effort;

    b. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

    c. a scaled drawing showing the horizontal location from which all soil samples were collected;

    d. identification of the depth and vertical interval from which each sample was collected;

    e. a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

    f. identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

    g. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

    h. visual classification of each soil sample in accordance with ASTM D-2488;

    I. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

    j. a discussion of the data, is it related to the overall goal of the sampling/analysis effort.

22. Following the determination of the extent of the contamination, RIA shall develop a proposal for site specific cleanup objectives. These site specific cleanup objectives shall be based upon Title 35 IAC Part 742 (Tiered Approach to Corrective Action Objectives).

23. The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

24. If groundwater is encountered during any soil sampling activities or soil removal effort prior to reaching soil which meets the cleanup objectives, then a plan to investigate for potential groundwater contamination must be submitted to the Illinois EPA for review and approval. Such a plan must be submitted within sixty (60) days after the date that the analytical results

are received which indicate that soil contamination extends to the water table. In addition, the Illinois EPA shall be notified in writing of this discovery within five (5) days after these analytical results are received.

25. All waste which is generated as a result of closure activities must be evaluated to determine if it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C or if it is a listed hazardous waste as set forth in 35 IAC 721, Subpart D.

    a. If the soil is determined to be a hazardous waste, then it must be managed in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    b. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

26. All references to the "Illinois EPA's RCRA closure plan instructions" refer to the document entitled Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities, December 11, 1990.

27. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code, Section 725.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.

28. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

29. If clean closure cannot be achieved pursuant to 35 IAC 725.297a then a modified closure plan and a post-closure plan prepared pursuant to 35 IAC Section 725.297b must be submitted to the Illinois EPA for review and approval within 60 days of such a determination.

30. 35 IAC 721.131 F001 through F005 wastes must be disposed in accordance with 35 IAC Part 728.

31. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

32. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

33. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Illinois EPA by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Illinois EPA by contacting:

    Facility Reporting Unit
    Bureau of Land
    Illinois Environmental Protection Agency
    2200 Churchill Road
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Within 35 days after the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding the groundwater aspects of this project, please contact Paula Stine at 217/524-3861; questions regarding other aspects of this project should be directed to Kevin D. Lesko at 217/524-3271.

Sincerely,

for Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KL:bjh\99512S.WPD

Attachments: Closure Certification Form
Closure Certification Statement LPC-PA18

cc: USEPA Region V -- Harriet Croke
Daily & Associates, Engineers, Inc. -- Patrick G. Sloan, P.E.

ATTACHMENT

This statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 Ill. Adm. Code 702.126) and by an independent licensed professional engineer upon completion of closure. Submit one copy of the certification with original signatures and two additional copies.

Closure Certification Statement
Rock Island Arsenal
Closure Log C-600

The hazardous waste container (S01) storage, tank (S02) storage, and tank treatment (T01) units within Building 64 have been closed in accordance with the specifications in the approved closure plan. A report documenting that closure has been carried out in accordance with the approved plan is attached.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____	_____
USEPA ID Number	Facility Name
_____	_____
Signature of Owner/Operator Date	Name and Title
_____	_____
Signature of Registration P.E. Date	Name of Licensed P.E. and Illinois Registration Number
Mailing Address of P.E.:	Registration P.E.'s Seal:
_____	
_____	
_____	
_____	

JLM:KL:bjh\99512S.WPD

File A.4.1 USEPA

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

September 29, 1994

Rock Island Arsenal
Office of the Commander
Colonel James B. Smith
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL5210021833
Log No. C-554-M-7
RCRA Closure - Building 33
Received: July 5, 1994

Dear Dr. Foss:

This is in response to the certification of closure submitted by Rock Island Arsenal for the unpermitted container (S01) storage area at the above referenced facility. This certification, signed by a representative of the owner/operator, James B. Smith, and an independent registered professional engineer, Patrick G. Sloan, indicated that the subject hazardous waste management unit had been closed in accordance with the plan approved by the Agency on April 1, 1994.

The subject hazardous waste management unit was inspected by a representative of the Agency on August 8, 1994. The inspection revealed that the unit was closed in accordance with the approved closure plan. In addition, review of the closure certification and accompanying closure documentation report also indicates that the unit was closured in accordance with the approved closure plan. Therefore, the Agency has determined that the closure of the container (S01) storage area at the above referenced facility has apparently met the requirements of 35 IAC 725.

As a result of completing closure of the subject hazardous waste management unit:

1. Rock Island Arsenal must still meet the requirements of 35 IAC 725 for the container (S01) storage area located in Building 242.

2. The facility must continue to meet the requirements of 35 IAC 722 Standards application to Generators of Hazardous Waste and 35 IAC 728 Land Disposal Restrictions.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

UCEPA

Mary A. Gade, Director
217/524-3300

2200 Churchill Road, Springfield, IL 62794-9276

August 4, 1994

Department of the Army
Attn: Mr. Achiel M. Dupont, Jr.
Rock Island Arsenal
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL5210021833
Log No. C-737
Received: June 16, 1994
RCRA Closure

Dear Mr. Dupont:

The interim status RCRA closure plan which you submitted has been reviewed by this Agency. Your partial closure plan to close the one (1) hazardous waste storage area at the above referenced facility (referred to as Building 242) is hereby approved subject to the following conditions and modifications:

1. Closure activities must be completed by February 15, 1995. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by April 15, 1995. These dates may be revised if the Army finds that additional time is necessary to complete all required closure activities and the Army demonstrates to the Agency that it is attempting to complete closure in a timely manner.

   The attached closure certification form must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.

   The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, a Closure Documentation Report which must be submitted which includes the following:

a. The volume of waste, waste residue and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

b. Scaled drawings showing the horizontal and vertical boundaries of the extent of any soil removal effort.

c. A description of the method of waste handling and transport.

d. The waste manifest numbers.

e. Copies of the waste manifests.

f. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include:

    1. identification of the reason for the sampling/analysis effort and the goals of the effort;

    2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

    3. a scaled drawing showing the horizontal location from which all soil samples were collected;

    4. identification of the depth and vertical interval from which each sample was collected;

    5. a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

    6. identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. A chronological summary of closure activities and the cost involved.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

2. The concrete surfaces of the container storage area shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected and analyzed. If analysis of the wash or rinse water samples detect the presence of F001, F002, F003, F005 or F006 constituents above the constituent's PQL identified in Test Methods for Evaluating Solid Wastes, Third Edition (SW-846), then that material must be managed as a hazardous waste. In addition, it must also be analyzed to determine if it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C. the collected water must be managed in accordance with the applicable requirements of 35 IAC 721, 722, 728, 729 and 809. At a minimum, this material must be managed as a non-hazardous special waste.

After cleaning the concrete surfaces, an independent registered professional engineer shall inspect the integrity of the concrete surfaces. These surfaces shall be inspected for cracks which penetrate through the concrete. In addition, all construction joints must be inspected to ensure they are watertight. This inspection must be carried out in accordance with standards and recommendations of professional/technical entities such as the American Concrete Institute,

the Portland Cement Association the American Society for Testing and Materials, the American Society of Civil Engineers, etc. which relate to the ability of concrete structures to contain liquids. The results of this inspection shall be (1) submitted in the form of a report, (2) included in the closure documentation report required by Condition 1, and (3) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) scaled drawings showing the location of all cracks and construction joints observed during the investigation, (3) conclusions reached regarding any cracks or construction joints observed in the areas of concern, (4) justification for the conclusions reached (e.g., information must be provided which indicates that any construction joints in the areas of concern are indeed watertight), and (5) photographs to support the conclusions reached.

3. If joints, cracks or other defects are found in the container storage areas during the inspection required by Condition 2 above which would potentially allow hazardous waste or hazardous constituents to migrate through them, then soil samples must be collected from beneath them to determine if hazardous waste or hazardous constituents have been released to the underlying soil. This sampling/analysis effort shall be carried out in accordance to the below listed procedures.

   a. Samples must be collected from at least one location along each joint or crack that provides a potential for hazardous waste or hazardous constituents to migrate to underlying soil. If the crack/joint is more than 15' long, then samples must be collected from along crack/joint at 15' intervals. Such locations shall be biased to stained areas or low-lying areas where spills would tend to accumulate.

   b. The procedures used to collect and analyze all samples shall be carried out in accordance with the procedures approved by this letter.

   c. Samples shall be collected from 0"-6" and from 18"-24" below the subgrade/natural soil interface.

4. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts. Collection and analysis of all samples must be carried out in accordance with the procedures set forth in this letter and SW-846.

5. All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with Test Methods for Evaluating Solid Wastes, Third Edition (SW-846), including Final Update I.

When a SW-846 (Third Edition) analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Agency. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

Each required soil sample must be analyzed for:

a. Volatile Organic Compounds using Test Method 8240 of SW846. All constituents listed in Table 2 of Method 8240 must be analyzed for and the PQLs in the table must be achieved.

b. Polynuclear aromatic hydrocarbons using Method 8310 of SW-846. All constituents listed in Table 1 of Method 8310 must be analyzed for and the PQL in that table must be achieved, and

c. The nine metals listed in Condition 6 below using Test Method 1311 of SW846.

6. To ensure the clean-closure requirements of 35 IAC 725.211 and 725.214, are met, the soil which remains in and around the SOI the hazardous waste management unit undergoing closure must meet the following soil cleanup objectives (unless otherwise noted), the unit of concentration associated with the values in the table is mg/kg):

Parameter	Cleanup Objective (mg/kg)
Acetone	0.7
Benzene	0.005
Ethylbenzene	0.7
Toluene	1.0
Xylene	10.0
1,1-Dichloroethane	0.7
1,2-Dichloroethane	0.005
1,1-Dichlorethene	0.007
Cis-1,2-Dichloroethene	0.07
trans-1,2-Dichlorethene	0.1
Methylene Chloride	0.005
Tetrachloroethene	0.005
1,1,1-Trichloroethane	0.2
Trichloroethene	0.005
Arsenic (TCLP)	0.05
Barium (TCLP)	2.0
Cadmium (TCLP)	0.005

Parameter	Cleanup Objective (mg/kg)
Chromium (TCLP)	0.1
Lead (TCLP)	0.0075
Mercury (TCLP)	0.002
Nickel (TCLP)	0.01
Selenium (TCLP)	0.05
Silver (TCLP)	0.05
Acenapthene	8.4
Anthracene	42.0
Benzo(a)anthracene	0.0026
Benzo(a)pyrene	0.0046
Benzo(b)fluoranthene	0.0036
Benzo(k)fluoranthene	0.0034
Chrysene	0.03
Dibenzo(a,h)anthracene	0.006
Fluoranthene	5.6
Fluorene	5.6
Indeno(1,2,3-cd)pyrene	0.0086
Napthalene	0.025
Pyrene	4.2
Other Non-Carcinogenic PNAs (sum of the three PNAs listed below)	4.2
Acenapthylene	
Benzo(g,h,i)perylene	
Phenanthrene	

NOTES: TCLP = Cleanup objective (CUO) based on the analysis of the extract from the Toxicity Characteristic Leaching Procedure -- Method 1311 of Test Methods for Evaluating Solid Waste, Third Edition (SW-846). Thus, the actual unit of measure for the CUOs.

7. If soil is encountered during any required soil sampling/analysis effort, then a sufficient number of additional samples should be collected and analyzed to clearly determine the horizontal and vertical limits of the soil which exceed the established cleanup objective in and around Building 242. The procedures used to collect and analyze these samples must be in accordance with those approved by this letter. The procedures used for determining the horizontal and vertical locations from which these samples are collected should be in accordance with Sections 13.a and 13.b of the Agency's RCRA closure plan instructions. However, no random sampling shall be used to make this determination.

8. The Agency shall be notified in writing if contaminants not listed in Condition 6 are detected above their respective practical quantitation limit. This notification shall identify the additional constituents detected and the concentration at which they were detected. The Agency will review this information and establish cleanup objectives for the newly detected contaminants, if necessary. The sampling and analysis effort being carried out to determine the extent of contamination shall not be delayed while the Agency is reviewing this information.

9. The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Agency associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Agency personnel and regional offices.

10. If groundwater is encountered during any soil sampling activities or soil removal effort prior to reaching soil which meets the cleanup objectives, then a plan to investigate for potential groundwater contamination must be submitted to the Agency for review and approval. Such a plan must be submitted within sixty (60) days after the date that the analytical results are received which indicate that soil contamination extends to the water table. In addition, the Agency shall be notified in writing of this discovery within five (5) days after these analytical results are received.

11. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established cleanup objectives.

12. If the Army determines that soil excavation and off-site disposal is not the preferred remedial action for this closure, then the Agency must be notified in writing when such a determination is made. At that time, the Agency will provide the Army with additional guidance regarding the information which must be submitted to the Agency for review and approval relative to the alternative remedial action which the facility would like to implement.

13. If removal and off-site disposal is the remedial action chosen for any soil contamination found, then all contaminated soil which is excavated for off-site disposal must be managed as hazardous waste (EPA Hazardous Waste F001, F002, F003, F005 and/or F006) in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements, if any F001, F002, F003, F005 or F006 hazardous constituents are detected in the soil above the established clean-up objectives. In addition, the soil must be analyzed to determine if it possesses any characteristics of hazardous waste and be handled in accordance with the applicable requirements of 35 IAC 721, 722, and 809. At a minimum, any contaminated soil which is sent off site for disposal must be managed as a non-hazardous special waste.

14. If removal and off-site disposal is the remedial action chosen for any soil contamination found, then soil samples must be collected for analysis from the bottom and sidewalls of the final excavation from which contaminated soil was removed. This sampling analysis effort necessary to demonstrate that the remaining soil meets the established cleanup objectives.

    a. A grid system as set forth in Section 13.b of the Agency's closure plan instructions must be established over the excavation.

    b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

    c. Samples must be collected 6"-12" below the ground surface at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

    d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

    e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 7 of the Agency's RCRA closure plan instructions. In addition, such samples must be collected 6"-12" beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

    f. No random sampling shall be conducted to verify that the cleanup objectives have been met.

15. If removal and off-site disposal is the remedial action chosen for any soil contamination found, then additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Additional samples must be collected and analyzed in accordance with Condition 14 above from areas where additional soil has been removed.

16. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

17. If clean closure cannot be achieved pursuant to 35 IAC 725.211 and 725.214, then a modified closure plan and a post-closure plan prepared pursuant to 35 IAC Section 725 must be submitted to the Agency for review and approval within 60 days of such a determination.

18. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

19. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

20. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

    Facility Reporting Unit
    Bureau of Land
    Illinois Environmental Protection Agency
    2200 Churchill Road
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact William T. Sinnott, II at 217/524-3300.

Sincerely,

Douglas W. Clay, P.E.
Hazardous Waste Branch Manager
Permit Section, Bureau of Land

DWC:WTS:lo/sp420W/1-9

Attachment

cc: USEPA Region V -- George Hamper

File A.4.1 USEPA

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

April 1, 1994

Commander
Rock Island Arsenal
Attn: SMCRI-SE (Dr. David Foss)
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL5210021833
Log No. C-554-M-7
Received: January 3, 1994
RCRA Closure - Building 33

Dear Dr. Foss:

The closure plan modification request submitted by Rock Island Arsenal (RIA) and prepared by Daily & Associates, Engineers, Inc. has been reviewed by this Agency. Your final closure plan to close the container (S01) storage area is hereby approved subject to the following conditions and modifications (it is understood that some of the requirements associated with these conditions and modifications may have been met):

1. This approval letter shall supersede the Agency's previous closure plan approval letter dated September 24, 1993.

2. The Agency has reviewed the information provided in RIA's submittal as well as other appropriate information. The Agency has determined that RIA has demonstrated that the container storage unit has not caused contamination of the underlying soils to an extent which would cause harm to human health or the environment. Based upon this determination RIA should prepare and submit a Closure Documentation Report as required by Condition 3. below.

3. Closure activities must be completed by May 1, 1994. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by June 1, 1994.

   The attached closure certification form (Attachment 1) must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Agency approves the facility's closure certification.

   The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

   As part of the closure certification, to document the closure activities at your facility, please submit a Closure Documentation Report which includes:

   a. The volume of waste and waste residue removed and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

   b. A description of the method of waste handling and transport.

   c. The waste manifest numbers.

   d. Copies of the waste manifests.

   e. Information documenting the results of all sampling/ analysis efforts. The goal of presenting this information should be to describe in a .

logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include the following:

1. identification of the reason for the sampling/analysis effort and the goals of the effort;

2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

3. a scaled drawing showing the horizontal location from which all soil samples were collected;

4. identification of the depth and vertical interval from which each sample was collected;

5. a description of the soil sampling procedures, sample procedures and chain of custody procedures;

6. a description of the test methods used and detection limits achieved, including sample preparation, sample dilution (if necessary), and analytical interferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality control data;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

f. Color photo documentation of closure. Document conditions before, during and after closure.

g. A chronological summary of closure activities and the cost involved.

h. A detailed explanation of any deviation from the approved closure plan, including justification of need for the deviation and an assessment of the impact that the deviation will have on the closure plan.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

4. The attached from entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Agency associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original for all submittals, so that the information submitted can be distributed, as necessary to Agency personnel and regional offices.

5. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 725.211, the Agency reserves the right to amend the closure plan. Revisions of the closure plan are subject to the provisions of Section 40 of the Illinois Environmental Protection Act.

6. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

7. The concrete surfaces of the container storage area shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in SW-846 (Third Edition), then that material must be managed as a hazardous

waste. If the wash or rinse water samples exhibits a characteristic of a hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

8. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established clean-up objectives.

9. All contaminated soil which is excavated for off-site disposal must be managed as follows:

   a. If analysis of the contaminated soil detects the presence of F001 constituents above the constituent's PQL identified in SW-846, then that material must be managed as hazardous waste (EPA Hazardous Waste No. F001) in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

   b. If analysis of the contaminated soil determines that it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C, then that material must be managed as hazardous waste in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

   c. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

10. 35 IAC 721.131 F001 through F005 waste must be disposed in accordance with 35 IAC Part 728.

11. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

12. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

13. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

    Facility Reporting Unit
    Division of Land Pollution Control
    Illinois Environmental Protection Agency
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact Kevin D. Lesko at 217/524-3271.

Sincerely,

Douglas W. Clay by KK

Douglas W. Clay, P.E.
Hazardous Waste Branch Manager
Permit Section, Bureau of Land

DWC:KL:kr\ria\bld33\approval.m7

Attachments: 1. Clean Closure Certification Statement
2. General RCRA Closure Form (LPC-PA18)

cc: USEPA Region V -- George Hamper
Daily & Associates, Inc. -- Patrick G. Sloan, P.E

File A.4.2 USEPA

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

September 24, 1993

Commander
Rock Island Arsenal
Attn: SMCRI-SE (Dr. David Foss)
Rock Island, Illinois 61299-5000

Re: 1618130001 -- Rock Island County
Rock Island Arsenal
IL5210021833
RCRA Closure - Building 33
Log No. C-554-M-6

Dear Dr. Foss:

The impetus for the Agency's modification of this closure plan was a meeting held between representative of the Agency and Rock Island Arsenal, on June 15, 1993. This meeting focused on the additional soil sampling which would be needed to address the closure of the Building 33 container (S01) storage area at the above referenced facility. The Agency agreed to review the existing data and clarify the additional sampling that would be required. The intent of this closure plan modification is to set forth the requirements for this additional sampling. The Agency's review has determined that resampling of two previously sampled locations, TP1 and TP2 is required. See Condition 1 below for the specific requirements and reasons for the resampling. The Agency will review this information in order to determine if any further investigation of the area is necessary. The closure plan for the container storage area is hereby approved subject to the following conditions and modifications (it is understood that some of the requirements associated with these conditions and modifications may have been met):

1. In RIA's submittal, dated February 16, 1993, RIA stated in response to Condition 9.b of the Agency's June 18, 1992 approval letter that the test pits were sampled using acceptable methods and protocol for excavations. The soil samples from the test pits, TP1 and TP2, were not obtained in accordance with the procedures set forth in the approved closure plan. Specifically, the soil samples were not obtained in accordance with the Agency's Soil Volatile Sampling Procedure, as was required in Condition 7 of the Agency's October 26, 1990 approval letter.

   Since sample locations TP1 and TP2 were improperly sampled for volatile organics, and the required detection limits for semi-volatile organics and lead were not met (see Condition 8 below) additional soil samples from locations TP1 and TP2 must be obtained using the appropriate sampling procedures, as identified in Condition 8 below. The samples must be obtained from the 0" to 6" and the 18" to 24" intervals, as

measured from the soil/backfill interface. In addition, the samples must be obtained from as near the originally sampled locations as possible. However, the soil samples shall not be obtained from the backfill material that was used to fill in the test pits, i.e., it should be obtained from the undisturbed soils. These samples must, at a minimum, be analyzed for the following:

- Volatile organics (SW-846, Method 8240)
- Methylene chloride ***
- Chloroform ***
- Semi-volatile organics (SW-846, Method 8270)
- Bis(2-ethylhexyl)phthalate ***
- Phenanthrene ***
- Fluoranthene ***
- Pyrene ***
- Benzo(k)fluoranthene ***
- Lead *

* = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

*** = The acceptable detection limits identified in Condition 8 below must be achieved for these compounds.

SW-846 = Test Methods for Evaluating Solid Waste, Third Edition, Final Update I.

RIA must submit, by January 1, 1994, a report to the Agency documenting the results of this investigation. This report must include the information required by Condition 2.e below.

2. Closure activities must be completed by May 1, 1994. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by June 1, 1994.

The attached closure certification form (Attachment 1) must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Agency approves the facility's closure certification.

The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois

or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E. Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, please submit a Closure Documentation Report which includes:

a. The volume of waste and waste residue removed and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

b. A description of the method of waste handling and transport.

c. The waste manifest numbers.

d. Copies of the waste manifests.

e. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include the following:

    1. identification of the reason for the sampling/analysis effort and the goals of the effort;

    2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

    3. a scaled drawing showing the horizontal location from which all soil samples were collected;

    4. identification of the depth and vertical interval from which each sample was collected;

    5. a description of the soil sampling procedures, sample procedures and chain of custody procedures;

    6. a description of the test methods used and detection limits achieved, including sample preparation, sample dilution (if necessary), and analytical interferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality control data;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

f. Color photo documentation of closure. Document conditions before, during and after closure.

g. A chronological summary of closure activities and the cost involved.

h. A detailed explanation of any deviation from the approved closure plan, including justification of need for the deviation and an assessment of the impact that the deviation will have on the closure plan.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

3. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 725.211, the Agency reserves the right to amend the closure plan. Revisions of the closure plan are subject to the provisions of Section 40 of the Illinois Environmental Protection Act.

4. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

5. The concrete surfaces of the container storage area shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in SW-846 (Third Edition), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibits a characteristic of a hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

7. All samples shall be analyzed individually (i.e., no composting). Sampling and analytical procedures shall be conducted in accordance with SW-846 and Attachment 2 of this document. If unknown compounds are detected during the laboratory analysis, attempts should be made to identify those compounds. At a minimum, the presence of the unknown compound shall be noted in the analytical report and reported to the Agency as required pursuant to Condition 9 below. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

8. The Agency has established the following cleanup objectives for the above referenced site. These CUOs are based upon the protection of Class I groundwater as defined in 35 IAC Part 620:

PARAMETER	Soil Cleanup Objectives (mg/kg)	Soil ADLs	Suggested SW-846 Method
Barium *	2.0 (mg/l)	0.1 (mg/l)	7080 **
Cadmium *	0.005 (mg/l)	0.005 (mg/l)	7130 **
Lead *	0.0075 (mg/l)	0.001 (mg/l)	7420 **
Acetone	0.7	0.1	8240
Chloroform	0.0002	0.00002	8010
Methylene Chloride	0.0002	0.0002	8021
Toluene	1.0	0.005	8240
Xylene	10.0	0.005	8240

PARAMETER (cont.)	Soil Cleanup Objectives (mg/kg)	Soil ADLs	Suggested SW-846 Method
Bis(2-ethylhexyl) phthalate	0.054	0.18	8061
Di-n-butyl phthalate	14.0	0.660	8270
Phenanthrene	0.330	0.330	8310
Fluoranthene	0.140	0.140	8310
Pyrene	0.180	0.180	8310
Benzo(k)-fluoranthene	0.0034	0.011	8310

NOTES:

* = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

** = The analytical method is to be run on the extract obtained, utilizing the TCLP (Method 1311 of SW-846), from the sample.

ADL = Acceptable Detection Limit, for guidance only, Lowest Practical Quantitation Limit as defined in SW-846. Acceptable Detection Limit have been set by the Agency for those substances where health or environmentally based cleanup objectives are below commonly attainable analytical detection limits. Where the cleanup objective is below the ADL, the stated cleanup objectives remain the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) have a detection limit at, or below, the Acceptable Detection Limit, and (3) are consistent with SW-846 quality assurance criteria.

In cases where the cleanup objective or the ADL (if the ADL is greater than the cleanup objective) is not achievable due site specific interference, the stated cleanup objective or ADL remains the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) documentation is provided which demonstrates that proper SW-846 quality assurance/quality control procedures were followed, and (3) the source of the interference is identified and discussed. This information must be provided in the form of a report. Following the submittal of this report, the Agency will review the information and determine if it is adequate to demonstrate that the parameter in question is not present.

9. The Agency shall be notified in writing within 15 days if contaminants not listed in Condition 9 are detected above their respective practical quantitation limit. This notification shall identify the additional constituents

detected and the concentration at which they were detected. The Agency will review this information and establish clean-up objectives for the newly detected contaminants, if necessary. The sampling and analysis effort being carried out to determine the extent of contamination shall not be delayed while the Agency is reviewing this information.

10. The Agency must be notified in writing if, at any time, it is found that soil contamination above the established clean-up objectives extends to near the water table. This notification must be made within 15 days after such a discovery is made. A plan to investigate for potential groundwater contamination must be submitted to the Agency for review and approval within 60 days after the initial written notification is submitted to the Agency.

11. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established clean-up objectives.

12. All contaminated soil which is excavated for off-site disposal must be managed as follows:

    a. If analysis of the contaminated soil detects the presence of F001 constituents above the constituent's PQL identified in SW-846, then that material must be managed as hazardous waste (EPA Hazardous Waste No. F001) in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    b. If analysis of the contaminated soil determines that it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C, then that material must be managed as hazardous waste in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    c. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

13. Soil samples must be collected for analysis from the bottom and sidewalls of the <u>final</u> excavation from which contaminated soil was removed. This sampling analysis effort necessary to demonstrate that the remaining soil meets the established clean-up objectives.

    a. A grid system as set forth in Section 13.b of the Agency's closure plan instructions must be established over the excavation.

    b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

    c. Samples must be collected from the 6" to 12" interval below the ground surface at each grid intersection around the excavation perimeter. Samples must also be

collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 2 of this document, i.e., Attachment 7 of the Agency's RCRA closure plan instructions. In addition, such samples must be collected from the 6" to 12" interval beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

f. No random sampling shall be conducted to verify that the clean-up objectives have been met.

14. All references to the "Agency's RCRA closure plan instructions" refer to the document entitled Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities, December 11, 1990. A copy of this document is enclosed.

15. RIA failed to provide information which demonstrated that the paraffin which was used to seal the ends of the sampling tubes did not impact the soil samples, as was required in Condition 13 of the Agency's June 18, 1992 approval letter. Since this demonstration was not made, future sampling tubes which will be analyzed for volatile organics must not be sealed with paraffin. The Agency's Soil Volatile Sampling Procedure, Attachment 2, must be followed as required by Condition 8 above. It is noted that this sampling procedure does allow the use of clay or wetted bentonite to eliminate head space.

16. RIA failed to provide an explanation of the following deficiencies noted with the analytical data in Condition 17 of the Agency's June 18, 1992 approval letter:

a. The detection limits achieved for cadmium, lead, and selenium are above those identified in Table 2-15 of SW- 846. Condition 7 of the Agency's October 26, 1990 approval letter required that these levels be met.

b. The detection limits achieved for the semi-volatile compounds for sample TP1 were approximately ten times those specified in Method 8270 of SW-846.

17. 35 IAC 721.131 F001 through F005 waste must be disposed in accordance with 35 IAC Part 728.

18. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated

hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

19. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

20. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

Facility Reporting Unit
Division of Land Pollution Control
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact Kevin D. Lesko at 217/524-3271.

Very truly yours,

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

LWE:KL:appr.m6,b33
JK

Attachments:
1. Closure Certification Statement
2. Soil Volatile Sampling Procedures
3. Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

cc: USEPA Region V -- George Hamper
Daily & Associates, Inc. -- Patrick G. Sloan, P.E

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 1

This statement is to be completed and attached to each of the 4 copies of the closure plan, closure plan modifications, or additional information which is submitted in relation to the closure of the facility. At least one of the copies must contain original signatures.

Closure Plan Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number _____ Facility Name _____

Signature of Owner/Operator _____ Name and Title _____

Date _____

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 2

Soil Volatile Sampling Procedures

Procedure:

A. PREPARATION AND DECONTAMINATION OF SOIL SAMPLER (i.e. STAINLESS STEEL, BRASS, BRONZE, COPPER, etc.). An example of these samplers would be a shelby tube, split-barrel sampler with metal tube inserts or california sampler. These are only examples. There may be more types available. Also, the sample tube **must** be at least six inches long.

*1. Wash tubing or sampler with hot water and a nonfoaming detergent.

2. Rinse with hot water.

*3. Rinse with a solvent, such as hexane or acetone.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized distilled water.

6. Air Dry

7. Store the sampler in aluminum foil until ready for use.

* Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated sampler (refer to preparation and decontamination instructions), push or drive the sampler to obtain a representative soil sample.

2. **DO NOT** remove sample from sample tube in the field. The laboratory should remove the sample from the sampling tube.

3. Immediately add clay or other cohesive material (i.e. wetted bentonite) to the ends of the sample to eliminate head space, if necessary.

4. Cover both ends of the sampler with aluminum foil. If possible, cover the aluminum foil with a cap.

5. Put the sample in storage at 4 degrees centigrade immediately.

6. Transport the samples to the laboratory as soon as possible. Most laboratories require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organic constituents <u>cannot</u> be composited because of the volatilization which would result from any compositing method.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

USEPA

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

May 19, 1993

Commander
Rock Island Arsenal
Attn: SMCRI-SE (Dr. David Foss)
Rock Island, Illinois 61299-5000

Re: 1618130013 -- Rock Island County
Rock Island Arsenal
IL5210021833
RCRA Closure - Building 33
Log No. C-554-M-5
Received: February 18, 1993

Dear Dr. Foss:

This letter is in response to your submittal, dated February 16, 1993 and received February 18, 1993. This document was reviewed as a closure plan modification as the submittal proposed alternate cleanup objectives (CUOs) for the container (S01) storage area located at Building 33 at the above referenced site. The submittal was entitled Hydrogeologic Assessment in Support of Closure for the Building 33 Hazardous Waste Management Unit, and was prepared by Daily & Associates, Inc. The closure plan for the container storage (S01) is hereby approved subject to the following conditions and modifications (it is under stood that some of the requirements associated with these conditions and modifications may have been met).

1. The Agency cannot, at this time, approve the proposed alternate CUOs identified in the closure plan modification request due to the following:

   a. The results of the investigation have determined that Class I groundwater is present below the facility, therefore, CUOs based upon the protection of Class II groundwater is not acceptable.

   b. RIA conclusion, in Section 6.0 of the report, that the nearest any future groundwater well could be located is 1500 feet away has not been substaintiated with supporting information.

   c. As stated on page 17 of the LUST Manual, the generic CUOs for LUST only apply to sites with releases of light, middle and heavy end petroleum releases. Therefore, the generic LUST CUOs are not applicable to this site.

d. CUOs based upon degradation calculations (fate transport) are not accepted by the Agency.

e. CUOs based upon a risk assessment type evaluation cannot be made the until extent of the contamination is defined.

2. RIA must submit a report which identifies the extent of the soil contamination. The extent of the contamination shall be defined as required in Condition 10 below. This report must include, at a minimum, the information identified in Conditions 3.e below. This report must be submitted for Agency review by September 1, 1993.

RIA must define the extent of the contamination based upon the CUOs identified in Condition 9 below. Once the extent of the contamination is known the Agency can make a site-specific evaluation of the contamination which is present in order to determine the extent of the remediation that is necessary at the site, if any.

3. Closure activities must be completed by December 1, 1993. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by February 1, 1994.

The attached closure certification form (Attachment 1) must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Agency approves the facility's closure certification.

The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E. Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, please submit a Closure Documentation Report which includes:

a. The volume of waste and waste residue removed and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

b. A description of the method of waste handling and transport.

c. The waste manifest numbers.

d. Copies of the waste manifests.

e. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include the following:

1. identification of the reason for the sampling/analysis effort and the goals of the effort;

2. a summary in tabular form of all analytical data, including all quality assurance/quality control data;

3. a scaled drawing showing the horizontal location from which all soil samples were collected;

4. identification of the depth and vertical interval from which each sample was collected;

5. a description of the soil sampling procedures, sample procedures and chain of custody procedures;

6. a description of the test methods used and detection limits achieved, including sample preparation, sample dilution (if necessary), and analytical interferences;

7. copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality control data;

8. visual classification of each soil sample in accordance with ASTM D-2488;

9. a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

10. a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

f. Color photo documentation of closure. Document conditions before, during and after closure.

g. A chronological summary of closure activities and the cost involved.

h. A detailed explanation of any deviation from the approved closure plan, including justification of need for the deviation and an assessment of the impact that the deviation will have on the closure plan.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

4. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 725.211, the Agency reserves the right to amend the closure plan. Revisions of the closure plan are subject to the provisions of Section 40 of the Illinois Environmental Protection Act.

5. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

6. The concrete surfaces of the container storage area shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in SW-846 (Third Edition), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibits a characteristic of a hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

7. In response to Condition 9.b of the Agency's June 18, 1992 approval letter, RIA states, the test pits were sampled using acceptable methods and protocol for excavations. The soil samples from the test pits, TP1 and TP2, were not obtained in accordance with the procedures set forth in the approved closure plan. Specifically, the soil samples were not obtained in accordance with the Agency's Soil Volatile Sampling Procedure, as was required in Condition 7 of the Agency's October 26, 1990 approval letter.

   Since sample locations TP1 and TP2 were improperly sampled for volatile organics, and the required detection limits for semi-volatile organics and lead were not met (see Condition 19 below) additional soil samples from locations TP1 and TP2 must be obtained using the appropriate sampling procedures, as identified in Condition 8 below. The samples must be obtained from the 0" to 6" and the 18" to 24" intervals, as measured from the soil/backfill interface. In addition, the samples must be obtained from as near the originally sampled locations as possible. However, the soil samples shall not be obtained from the backfill material that was used to fill in the test pits, i.e., it should be obtained from the undisturbed soils. These samples must, at a minimum, be analyzed for the following:

   - Volatile organics (SW-846, Method 8240)
   - Methylene chloride ***
   - Chloroform ***
   - Semi-volatile organics (SW-846, Method 8270)
   - Bis(2-ethylhexyl)phthalate ***
   - Phenanthrene ***
   - Fluoranthene ***
   - Pyrene ***
   - Benzo(k)fluoranthene ***
   - Lead *

   * = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

   *** = The acceptable detection limits identified in Condition 9 below must be achieved for these compounds.

   SW-846 = Test Methods for Evaluating Solid Waste, Third Edition (including Final Update I).

8. All samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with SW-846 and Attachment 2 of this document. If unknown compounds are detected during the laboratory analysis, attempts should be made to identify those compounds. At a minimum, the presence of the unknown compound shall be noted in the analytical report and reported to the Agency as required pursuant to Condition 10.a below. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or

contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

9. The Agency has established the following cleanup objectives for the above referenced site. These CUOs are based upon the protection of Class I groundwater as defined in 35 IAC Part 620:

PARAMETER	Soil Cleanup Objectives (mg/kg)	Soil ADLs	Suggested SW-846 Method
Barium *	2.0 (mg/l)	0.1 (mg/l)	7080 **
Cadmium *	0.005 (mg/l)	0.005 (mg/l)	7130 **
Lead *	0.0075 (mg/l)	0.001 (mg/l)	7420 **
Acetone	0.7	0.1	8240
Chloroform	0.0002	0.00002	8010
Methylene Chloride	0.0002	0.0002	8021
Toluene	1.0	0.005	8240
Xylene	10.0	0.005	8240
Bis(2-ethylhexyl) phthalate	0.054	0.18	8061
Di-n-butyl phthalate	14.0	0.660	8270
Phenanthrene	0.330	0.330	8310
Fluoranthene	0.140	0.140	8310
Pyrene	0.180	0.180	8310
Benzo(k)-fluoranthene	0.0034	0.011	8310

NOTES:

* = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

** = The analytical method is to be run on the extract obtained, utilizing the TCLP (Method 1311 of SW-846), from the sample.

ADL = Acceptable Detection Limit, for guidance only, Lowest Practical Quantitation Limit as defined in SW-846. Acceptable Detection Limit have been set by the Agency for those substances where health or environmentally based cleanup objectives are below commonly attainable analytical detection limits. Where the cleanup objective is below the ADL, the stated cleanup objectives remain the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) have a detection limit at, or below, the Acceptable Detection Limit, and (3) are consistent with SW-846 quality assurance criteria.

In cases where the cleanup objective or the ADL (if the ADL is greater than the cleanup objective) is not achievable due site specific interference, the stated cleanup objective or ADL remains the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) documentation is provided which demonstrates that proper SW-846 quality assurance/quality control procedures were followed, and (3) the source of the interference is identified and discussed. This information must be provided in the form of a report. Following the submittal of this report, the Agency will review the information and determine if it is adequate to demonstrate that the parameter in question is not present.

10. A sufficient number of samples should be collected and analyzed to clearly determine the horizontal and vertical limits of the soil which exceed the established clean-up objective in and around the unit undergoing closure. The procedures used to collect and analyze these samples must be in accordance with those approved by this letter. The procedures used for determining the horizontal and vertical locations from which these samples must be collected shall be in accordance with Sections 13.a and 13.b of the Agency's RCRA closure plan instructions. However, no random sampling shall be used to make this determination.

    a. The Agency shall be notified in writing if contaminants not listed in Condition 9 are detected above their respective practical quantitation limit. This notification shall identify the additional constituents detected and the concentration at which they were detected. The Agency will review this information and establish clean-up objectives for the newly detected contaminants, if necessary. The sampling and analysis effort being carried out to determine the extent of contamination shall not be delayed while the Agency is reviewing this information.

11. The Agency must be notified in writing if, at any time, it is found that soil contamination above the established clean-up objectives extends to near the water table. This notification must be made within 15 days after such a discovery is made. A plan to investigate for potential groundwater contamination

must be submitted to the Agency for review and approval within 60 days after the initial written notification is submitted to the Agency.

12. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established clean-up objectives.

13. All contaminated soil which is excavated for off-site disposal must be managed as follows:

    a. If analysis of the contaminated soil detects the presence of F001 constituents above the constituent's PQL identified in SW-846, then that material must be managed as hazardous waste (EPA Hazardous Waste No. F001) in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    b. If analysis of the contaminated soil determines that it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C, then that material must be managed as hazardous waste in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    c. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

14. Soil samples must be collected for analysis from the bottom and sidewalls of the <u>final</u> excavation from which contaminated soil was removed. This sampling analysis effort necessary to demonstrate that the remaining soil meets the established clean-up objectives.

    a. A grid system as set forth in Section 13.b of the Agency's closure plan instructions must be established over the excavation.

    b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

    c. Samples must be collected from the 6" to 12" interval below the ground surface at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

    d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

    e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 2 of this document, i.e., Attachment 7 of the Agency's RCRA closure

plan instructions. In addition, such samples must be collected from the 6" to 12" interval beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

f. No random sampling shall be conducted to verify that the clean-up objectives have been met.

15. Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established clean-up objectives. Additional samples must be collected and analyzed in accordance with Condition 14 above from areas where additional soil has been removed.

16. All references to the "Agency's RCRA closure plan instructions" refer to the document entitled Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities, December 11, 1990. A copy of this document is enclosed.

17. RIA failed to provide information which demonstrated that the paraffin which was used to seal the ends of the sampling tubes did not impact the soil samples, as was required in Condition 13 of the Agency's June 18, 1992 approval letter. Since this demonstration was not made, future sampling tubes which will be analyzed for volatile organics must not be sealed with paraffin. The Agency's Soil Volatile Sampling Procedure, Attachment 2, must be followed as required by Condition 8 above. It is noted that this sampling procedure does allow the use of clay or wetted bentonite to eliminate head space.

18. RIA failed to provide the information required by Condition 14.b of the Agency's June 18, 1992 approval letter to demonstrate that methylene chloride and acetone are present in the soil samples only due to lab contamination. Since this information was not provided the Agency cannot, at this time, concur with RIA's conclusion that methylene chloride and acetone are present in the soil samples only due to lab contamination.

19. RIA failed to provide an explanation of the following deficiencies noted with the analytical data in Condition 17 of the Agency's June 18, 1992 approval letter:

    a. The detection limits achieved for cadmium, lead, and selenium are above those identified in Table 2-15 of SW-846. Condition 7 of the Agency's October 26, 1990 approval letter required that these levels be met.

    b. The detection limits achieved for the semi-volatile compounds for sample TP1 were approximately ten times those specified in Method 8270 of SW-846.

20. 35 IAC 721.131 F001 through F005 waste must be disposed in accordance with 35 IAC Part 728.

21. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

22. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

23. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

    Facility Reporting Unit
    Division of Land Pollution Control
    Illinois Environmental Protection Agency
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact Kevin D. Lesko at 217/524-3271.

Very truly yours,

Lawrence W Eastep LWE JHK

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LWE:KDL:riam4,b33
KDL
JHK

Attachments:
1. Closure Certification Statement
2. Soil Volatile Sampling Procedures
3. Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

cc: USEPA Region V -- George Hamper

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 1

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

Closure Log C-554

The hazardous waste management continer (S01) storage unit at the facility described in this document have been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number

Facility Name

Signature of Owner/Operator

Name and Title

Signature of Registered P.E.

Name of Registered and Illinois Registration Number

Mailing Address of P.E.:

Registered P.E.'s Seal:

Date

KDL

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 2

Soil Volatile Sampling Procedures

Procedure:

A. PREPARATION AND DECONTAMINATION OF SOIL SAMPLER (i.e. STAINLESS STEEL, BRASS, BRONZE, COPPER, etc.). An example of these samplers would be a shelby tube, split-barrel sampler with metal tube inserts or california sampler. These are only examples. There may be more types available. Also, the sample tube **must** be at least six inches long.

*1. Wash tubing or sampler with hot water and a nonfoaming detergent.

2. Rinse with hot water.

*3. Rinse with a solvent, such as hexane or acetone.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized distilled water.

6. Air Dry

7. Store the sampler in aluminum foil until ready for use.

* Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated sampler (refer to preparation and decontamination instructions), push or drive the sampler to obtain a representative soil sample.

2. **DO NOT** remove sample from sample tube in the field. The laboratory should remove the sample from the sampling tube.

3. Immediately add clay or other cohesive material (i.e. wetted bentonite) to the ends of the sample to eliminate head space, if necessary.

4. Cover both ends of the sampler with aluminum foil. If possible, cover the aluminum foil with a cap.

5. Put the sample in storage at 4 degrees centigrade immediately.

6. Transport the samples to the laboratory as soon as possible. Most laboratories require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organic constituents <u>cannot</u> be composited because of the volatilization which would result from any compositing method.

US EPA

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

November 12, 1992

Commander
Rock Island Arsenal
Attn: SMCRI-CO (Dr. David Foss)
Rock Island, Illinois 61299-5000

Re: 1618130013 -- Rock Island County
Rock Island Arsenal
IL5210021833
RCRA Closure - Building 33
Log No. C-554-M-4
Received: August 14, 1992

Dear Dr. Foss:

This letter is in response to Rock Island Arsenal's (RIA) closure plan modification request, dated August 12, 1992 and received August 14, 1992, regarding closure of a hazardous waste container (S01) storage unit at Building 33 at the above referenced site. Your closure plan modification request is hereby approved subject to the following conditions and modifications:

1. Closure activities must be completed by May 15, 1993. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by June 15, 1993.

   The attached closure certification form (Attachment 1) must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Agency approves the facility's closure certification.

   The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be

RI-33

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

Dr. David Foss - Building 33 Closure C-554-M-4

registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E. Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

As part of the closure certification, to document the closure activities at your facility, please submit a Closure Documentation Report which includes:

a. The volume of waste and waste residue removed. The term waste includes wastes resulting from decontamination activities.

b. A description of the method of waste handling and transport.

c. The waste manifest numbers.

d. Copies of the waste manifests.

e. A description of the sampling and analytical methods used including sample preservation methods and chain-of-custody information.

f. A chronological summary of closure activities and the cost involved.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. Tests performed, methods and results.

i. A detailed explanation of any deviation from the approved closure plan, including justification of need for the deviation and an assessment of the impact that the deviation will have on the closure plan.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #33
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

Dr. David Foss - Building 33 Closure C-554-M-4

2. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 725.211, the Agency reserves the right to amend the closure plan. Revisions of the closure plan are subject to the provisions of Section 40 of the Illinois Environmental Protection Act.

3. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

4. The concrete surfaces of the container storage area shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in SW-846 (Third Edition), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibits a characteristic of a hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste.

5. In response to Condition 9.b of the Agency's June 18, 1992 approval letter, RIA states, the test pits were sampled using acceptable methods and protocol for excavations. The soil samples from the test pits, TP1 and TP2, were not obtained in accordance with the procedures set forth in the approved closure plan. Specifically, the soil samples were <u>not</u> obtained in accordance with the Agency's <u>Soil Volatile Sampling Procedure,</u> as was required in Condition 7 of the Agency's October 26, 1990 approval letter.

   Since sample locations TP1 and TP2 were improperly sampled for volatile organics, and the required detection limits for semi-volatile organics and lead were not met (see Condition 17 below) additional soil samples from locations TP1 and TP2 must be obtained using the appropriate sampling procedures, as identified in Condition 6 below. The samples must be obtained

from the 0" to 6" and the 18" to 24" intervals, as measured from the soil/backfill interface. In addition, the samples must be obtained from as near the originally sampled locations as possible. However, the soil samples shall not be obtained from the backfill material that was used to fill in the test pits, i.e., it should be obtained from the undisturbed soils. These samples must, at a minimum, be analyzed for the following:

- Volatile organics (SW-846, Method 8240)
- Methylene chloride ***
- Chloroform ***
- Semi-volatile organics (SW-846, Method 8270)
- Bis(2-ethylhexyl)phthalate ***
- Phenanthrene ***
- Fluoranthene ***
- Pyrene ***
- Benzo(k)fluoranthene ***
- Lead *

* = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

*** = The analytical methods identified in Condition 7 below must be used for these compounds

SW-846 = Test Methods for Evaluating Solid Waste, Third Edition (including Final Update I).

6. All samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with SW-846 and Attachment 2 of this document. If unknown compounds are detected during the laboratory analysis, attempts should be made to identify those compounds. At a minimum, the presence of the unknown compound shall be noted in the analytical report and reported to the Agency as required pursuant to Condition 8.a below. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

7. As requested, the Agency has established cleanup objectives (CUOs) for the above referenced site. These objectives have been established based upon the protection of Class I groundwater as defined in 35 IAC Part 620. It must be noted that the Agency requested additional information regarding the

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

hydrogeology of the site for the purposes of establishing CUOs based upon the protection of Class II groundwater (Class II CUOs) (see Condition 19 of the Agency's June 18, 1992 approval letter). RIA failed to provide this information, hence the establishment of CUOs based upon the protection of Class I groundwater. If RIA choses to provide this information at a later date, the Agency will evaluate the information to determine if Class II CUOs are appropriate. If the Agency determines that Class II CUOs are appropriate, the CUOs would be modified to reflect this.

The Agency has established the following cleanup objectives:

PARAMETER	Soil Cleanup Objectives (mg/kg)	Soil ADLs	Suggested SW-846 Method
Barium *	2.0 (mg/l)	0.1 (mg/l)	7080 **
Cadmium *	0.005 (mg/l)	0.005 (mg/l)	7130 **
Lead *	0.0075 (mg/l)	0.001 (mg/l)	7420 **
Acetone	0.7	0.1	8240
Chloroform	0.0002	0.00002	8010
Methylene Chloride	0.0002	0.0002	8021
Toluene	1.0	0.005	8240
Xylene	10.0	0.005	8240
Bis(2-ethylhexyl) phthalate	0.054	0.18	8061
Di-n-butyl phthalate	14.0	0.660	8270
Phenanthrene	0.330	0.330	8310
Fluoranthene	0.140	0.140	8310
Pyrene	0.180	0.180	8310
Benzo(k)-fluoranthene	0.0034	0.011	8310

Dr. David Foss - Building 33 Closure C-554-M-4

NOTES:

* = Analysis shall be performed using the Toxicity Characteristic Leaching Procedure (TCLP) SW-846, Method 1311.

** = The analytical method is to be run on the extract obtained, utilizing the TCLP (Method 1311 of SW-846), from the sample.

ADL = Acceptable Detection Limit, for guidance only, Lowest Practical Quantitation Limit as defined in SW-846. Acceptable Detection Limit have been set by the Agency for those substances where health or environmentally based cleanup objectives are below commonly attainable analytical detection limits. Where the cleanup objective is below the ADL, the stated cleanup objectives remain the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) have a detection limit at, or below, the Acceptable Detection Limit, and (3) are consistent with SW-846 quality assurance criteria.

In cases where the cleanup objective or the ADL (if the ADL is greater than the cleanup objective) is not achievable due site specific interference, the stated cleanup objective or ADL remains the goal, however, the Agency will accept analysis as proof of acceptable cleanup if they: (1) show no detection, (2) documentation is provided which demonstrates that proper SW-846 quality assurance/quality control procedures were followed, and (3) the source of the interference is identified and discussed. This information must be provided in the form of a report. Following the submittal of this report, the Agency will review the information and determine if it is adequate to demonstrate that the parameter in question is not present.

8. A sufficient number of samples should be collected and analyzed to clearly determine the horizontal and vertical limits of the soil which exceed the established clean-up objective in and around the unit undergoing closure. The procedures used to collect and analyze these samples must be in accordance with those approved by this letter. The procedures used for determining the horizontal and vertical locations from which these samples must be collected shall be in accordance with Sections 13.a and 13.b of the Agency's RCRA closure plan instructions. However, no random sampling shall be used to make this determination.

   a. The Agency shall be notified in writing if contaminants not listed in Condition 7 are detected above their respective practical quantitation limit. This

notification shall identify the additional constituents detected and the concentration at which they were detected. The Agency will review this information and establish clean-up objectives for the newly detected contaminants, if necessary. The sampling and analysis effort being carried out to determine the extent of contamination shall not be delayed while the Agency is reviewing this information.

9. The Agency must be notified in writing if, at any time, it is found that soil contamination above the established clean-up objectives extends to near the water table. This notification must be made within 15 days after such a discovery is made. A plan to investigate for potential groundwater contamination must be submitted to the Agency for review and approval within 60 days after the initial written notification is submitted to the Agency.

10. Contaminated soil may be excavated and disposed off-site at any time during closure. The goal of any such effort should be to remove all soil which exceeds the established clean-up objectives.

11. If RIA determines that soil excavation and off-site disposal is not the preferred remedial action for this closure, then the Agency must be notified in writing when such a determination is made. At that time, the Agency will provide RIA with additional guidance regarding the information which must be submitted to the Agency for review and approval relative to the alternative remedial action which the facility would like to implement.

12. All contaminated soil which is excavated for off-site disposal must be managed as follows:

    a. If analysis of the contaminated soil detects the presence of F001 constituents above the constituent's PQL identified in SW-846, then that material must be managed as hazardous waste (EPA Hazardous Waste No. F001) in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

    b. If analysis of the contaminated soil determines that it possesses any of the characteristics of hazardous waste as set forth in 35 IAC 721, Subpart C, then that material must be managed as hazardous waste in accordance with 35 IAC 722, 723, 728 and 809, as well as all applicable federal requirements.

c. If the soil is determined to be a non-hazardous waste, then it must be managed as a non-hazardous special waste in accordance with 35 IAC 809.

13. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation from which contaminated soil was removed. This sampling analysis effort necessary to demonstrate that the remaining soil meets the established clean-up objectives.

a. A grid system as set forth in Section 13.b of the Agency's closure plan instructions must be established over the excavation.

b. Samples must be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

c. Samples must be collected from the 6" to 12" interval below the ground surface at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

d. Collection/analysis of all required samples must be in accordance with the procedures approved in this letter.

e. Soil samples which must be analyzed for volatile organic compounds shall be collected using Attachment 2 of this document, i.e., Attachment 7 of the Agency's RCRA closure plan instructions. In addition, such samples must be collected from the 6" to 12" interval beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

f. No random sampling shall be conducted to verify that the clean-up objectives have been met.

14. Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established clean-up objectives. Additional samples must be collected and analyzed in accordance with Condition 12 above from areas where additional soil has been removed.

15. All references to the "Agency's RCRA closure plan instructions" refer to the document entitled Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities, December 11, 1990. A copy of this document is enclosed.

Mary A. Gade, Director

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Dr. David Foss - Building 33 Closure C-554-M-4

16. RIA failed to provide information which demonstrated that the paraffin which was used to seal the ends of the sampling tubes did not impact the soil samples, as was required in Condition 13 of the Agency's June 18, 1992 approval letter. Since this demonstration was not made, future sampling tubes which will be analyzed for volatile organics must not be sealed with paraffin. The Agency's Soil Volatile Sampling Procedure, Attachment 2, must be followed as required by Condition 6 above. It is noted that this sampling procedure does allow the use of clay or wetted bentonite to eliminate head space.

17. RIA failed to provide an explanation of the following deficiencies noted with the analytical data in Condition 17 of the Agency's June 18, 1992 approval letter:

    a. The detection limits achieved for cadmium, lead, and selenium are above those identified in Table 2-15 of SW-846. Condition 7 of the Agency's October 26, 1990 approval letter required that these levels be met.

    b. The detection limits achieved for the semi-volatile compounds for sample TP1 were approximately ten times those specified in Method 8270 of SW-846.

18. RIA failed to provide the information required by Condition 14.b of the Agency's June 18, 1992 approval letter to demonstrate that methylene chloride and acetone are present in the soil samples only due to lab contamination. Since this information was not provided the Agency cannot, at this time, concur with RIA's conclusion that methylene chloride and acetone are present in the soil samples only due to lab contamination.

19. 35 IAC 721.131 F001 through F005 waste must be disposed in accordance with 35 IAC Part 728.

20. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

21. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site

generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

22. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

    Facility Reporting Unit
    Division of Land Pollution Control
    Illinois Environmental Protection Agency
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact Kevin D. Lesko at 217/524-3271.

Very truly yours,

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LWE:KDL KDL JHC

Attachments:
1. Closure Certification Statement
2. Soil Volatile Sampling Procedures
3. Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

cc: USEPA Region V -- George Hamper
Daily & Associates, Inc.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 1

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

Closure Log C-554-M-4

The hazardous waste management container storage area (S01) at the facility described in this document have been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

ATTACHMENT 2

Soil Volatile Sampling Procedures

Procedure:

A. PREPARATION AND DECONTAMINATION OF SOIL SAMPLER (i.e. STAINLESS STEEL, BRASS, BRONZE, COPPER, etc.). An example of these samplers would be a shelby tube, split-barrel sampler with metal tube inserts or california sampler. These are only examples. There may be more types available. Also, the sample tube **must** be at least six inches long.

*1. Wash tubing or sampler with hot water and a nonfoaming detergent.

2. Rinse with hot water.

*3. Rinse with a solvent, such as hexane or acetone.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized distilled water.

6. Air Dry

7. Store the sampler in aluminum foil until ready for use.

* Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated sampler (refer to preparation and decontamination instructions), push or drive the sampler to obtain a representative soil sample.

2. **DO NOT** remove sample from sample tube in the field. The laboratory should remove the sample from the sampling tube.

3. Immediately add clay or other cohesive material (i.e. wetted bentonite) to the ends of the sample to eliminate head space, if necessary.

4. Cover both ends of the sampler with aluminum foil. If possible, cover the aluminum foil with a cap.

5. Put the sample in storage at 4 degrees centigrade immediately.

6. Transport the samples to the laboratory as soon as possible. Most laboratories require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organic constituents <u>cannot</u> be composited because of the volatilization which would result from any compositing method.

C554-A-1

USEPA

DEPARTMENT OF THE ARMY
ROCK ISLAND ARSENAL
ROCK ISLAND, ILLINOIS 61299-5000

April 26, 1991

REPLY TO
ATTENTION OF:

SMCRI-SE

Mr. Kevin Lesko
Illinois Environmental Protection Agency
Division of Land Pollution Control #24
Permit Section
P.O. Box 19276
Springfield, Illinois 62794-9276

Dear Mr. Lesko:

The purpose of this letter is to furnish the revised testing plan for the closure of building 33, as discussed in the meeting between Dr. William Shore, Rock Island Arsenal (RIA) Environmental Coordinator, and permit section personnel on February 15, 1991. Enclosed is the revised RIA plan presenting the testing scheme and the site drawing showing the cracks and patched area.

The plan has been submitted to our Directorate of Contracting and a contract has been awarded. The enclosed contractor's plan shows that the field work will be completed by June 30, 1991, and the report issued by August 31, 1991. If there are changes your office would like, please let us know.

For further questions, please contact Dr. William Shore, Environmental Coordinator, (309) 782-7855.

Sincerely,

Achiel M. Dupont, Jr.
Director, Science and
Engineering Directorate

Enclosures

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MAY 01 1991
IEPA/DLPC

RI-11

SMCRI-EHS (420-10c) 28 MAR 1991

MEMORANDUM FOR SMCRI-CTI

SUBJECT: Soil Testing for Closure of Hazardous Waste Management Unit (HWMU) at Building 33, Project Request 28-91

1. Request service contract procurement action for emergency soil testing services to establish presence and limits of soil contamination at HWHU site located east of building 33. See enclosed sketch number 1 and number 2 for site location (encl 1 and 2).

2. The HWHU site was utilized by Rock Island Arsenal for the storage of spent degreasing solvents, namely 1.1.1 - trichloroethane. Other products previously stored at building 33 include used petroleum naptha and baghouse dust from weapons manufacturing operations. Also, the site was previously used as a machine gun firing range. Unspent propellent (gun powder) containing nitrate/nitrite compounds may be present.

3. The soil testing shall incorporate the following principal features:

a. One soil sample shall be obtained from beneath the crack along the eastern edge of the HWHU site, see enclosed sketch number 2 for crack location (encl 2). Sample shall be collected from the level of the subbase/soil interface to a depth of 6 inches below said subbase/soil interface.

b. A soil sample from the storm sewer outfall shall be obtained from the surface to a depth of 6 inches. See enclosed sketch number 3 for sample location (encl 3).

c. Soil samples shall be taken where indicated on enclosed sketch number 3 (encl 3). Samples shall be obtained from a depth of 6 inches below the subbase/soil interface.

d. Test a minimum of three (3) background sampling locations. Locations shall be areas not affected by the HWMU's operation. Samples shall be taken from the surface to a depth of 6 inches. Typical sampling locations are indicated on enclosed sketch number 4 (encl 4).

4. The placement of drill cuttings into the soil boring holes is not permitted. All cuttings shall be collected and handled as hazardous waste until they are determined by analysis to be otherwise. All boring holes shall be backdrilled with a cement-bentonite grout. The top 8 inches of borings in concrete or asphalt shall be filled with concrete.

5. All soil samples shall be analyzed for the following:

a. Volatile organics (Method 8240)

b. Semi-Volatile organics (Method 8270)

c. Arsenic

d. Barium

e. Cadmium

f. Chromium

g. Mercury

h. Selenium

i. Nitrate/Nitrite

6. The Toxicity Characteristic Leaching Procedure (TCLP) shall be conducted on any metal and/or organic constituents for which the total levels exceed the regulatory levels defined in 35 IAC 721.124.

7. All samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846 and Attachment 1 (encl 5). Field screening shall not be performed on samples which will be sent to the laboratory for analysis, however, field screening of samples to determine presence of constituents is permitted. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion or the interval to be analyzed.

8. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter in the latest edition of SW-846.

9. For inorganic parameters, the detection limit must be at least as low as the RCRA Groundwater Detection Limits, as referenced in SW-846 (Third Edition), Volume 1A, pages TWO-29 and TWO-30, Table 2-15.

SMCRI-EHS
SUBJECT: Soil Testing for Closure of Hazardous Waste Management Unit (HWMU) at Building 33, Project Request 26-91

10. Sampling program shall be extensive enough to determine the lateral and vertical extent of any contamination to the detection limit (PQLs) referenced.

11. 35 IAC 721.131 F001 through F005 wastes must be disposed of in accordance with IAC Part 728 (this includes drill cuttings).

12. Upon completion of soil sampling and laboratory analysis submit the following in report form:

a. Test methods used and detection limits achieved.

b. Depth and interval of samples taken.

c. Description of soil sampling procedures and sample preservation/chain of custody methods.

d. Accurate scaled drawing showing the locations of samples obtained and the associated unit(s).

13. To avoid creating another regulated storage unit during sampling, coordinate all activities prior to conducting any work at the site through Dr. William Shore, Environmental Coordinator, Rock Island Arsenal, (309) 782-7855. Also, if it is necessary to store excavated material (drill cuttings) on-site, prior to disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated material in piles. The ninety (90) day accumulation time exception (35 IAC 722.134) only applies to containers and tanks.

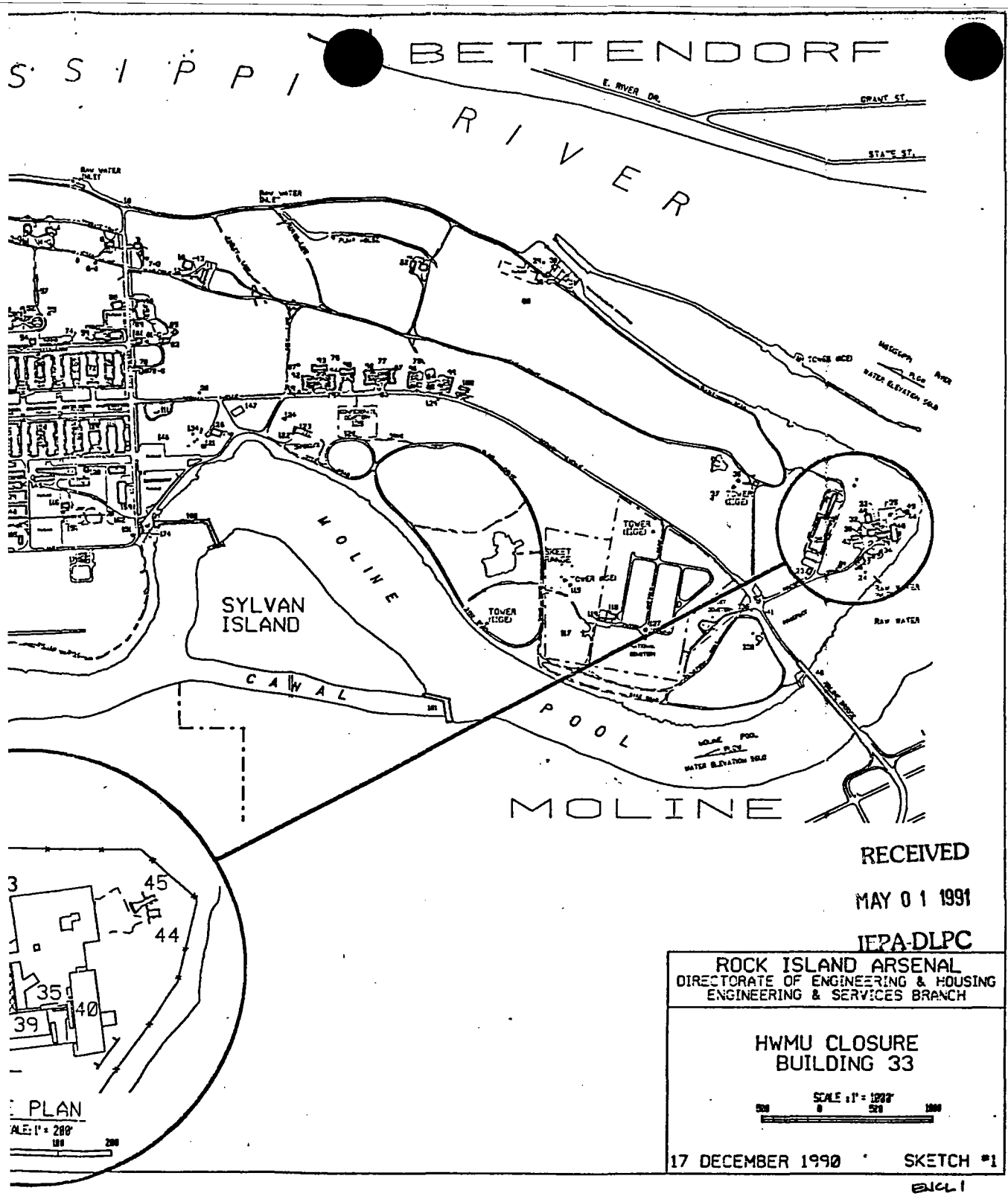
14. Pursuant to 35 IAC 722.134, when on-site genrated hazardous waste is stored in containers or tanks those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

15. The Arsenal will be responsible for the final disposition of all potential hazardous waste generated during the sampling work required under this contract. The Arsenal will provide the containers to be used for the temporary storage of the potential hazardous waste generated during sampling (drill cuttings, etc.).

SIGNED

5 Encls
as

JAMES A. THOMPSON
Chief, Engineering and
Services Division



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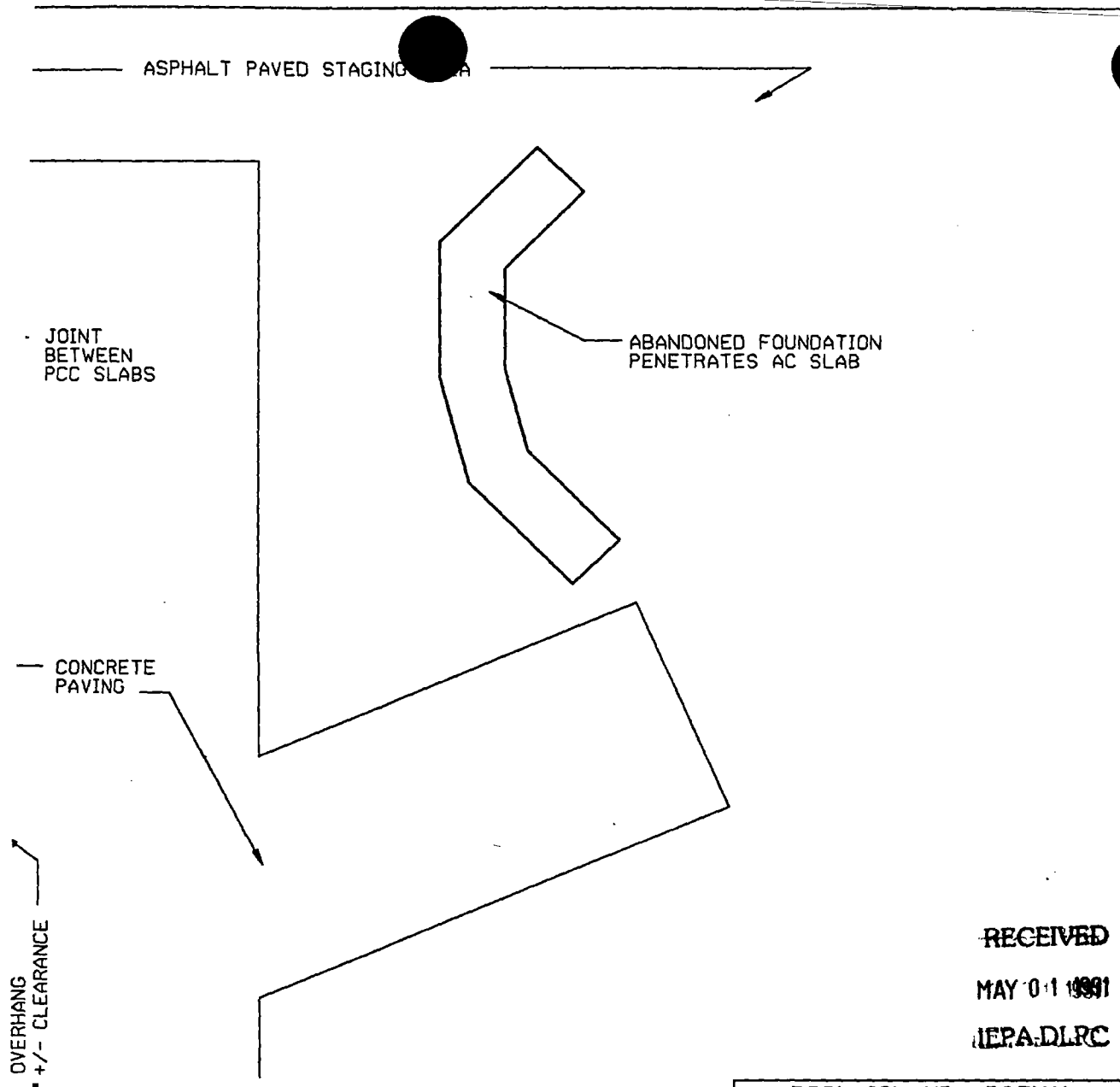
ROCK ISLAND ARSENAL
DIRECTORATE OF ENGINEERING & HOUSING
ENGINEERING & SERVICES BRANCH

HWMU CLOSURE
BUILDING 33

17 DECEMBER 1990 · SKETCH #1

ENCL 1



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MAY 01 1991

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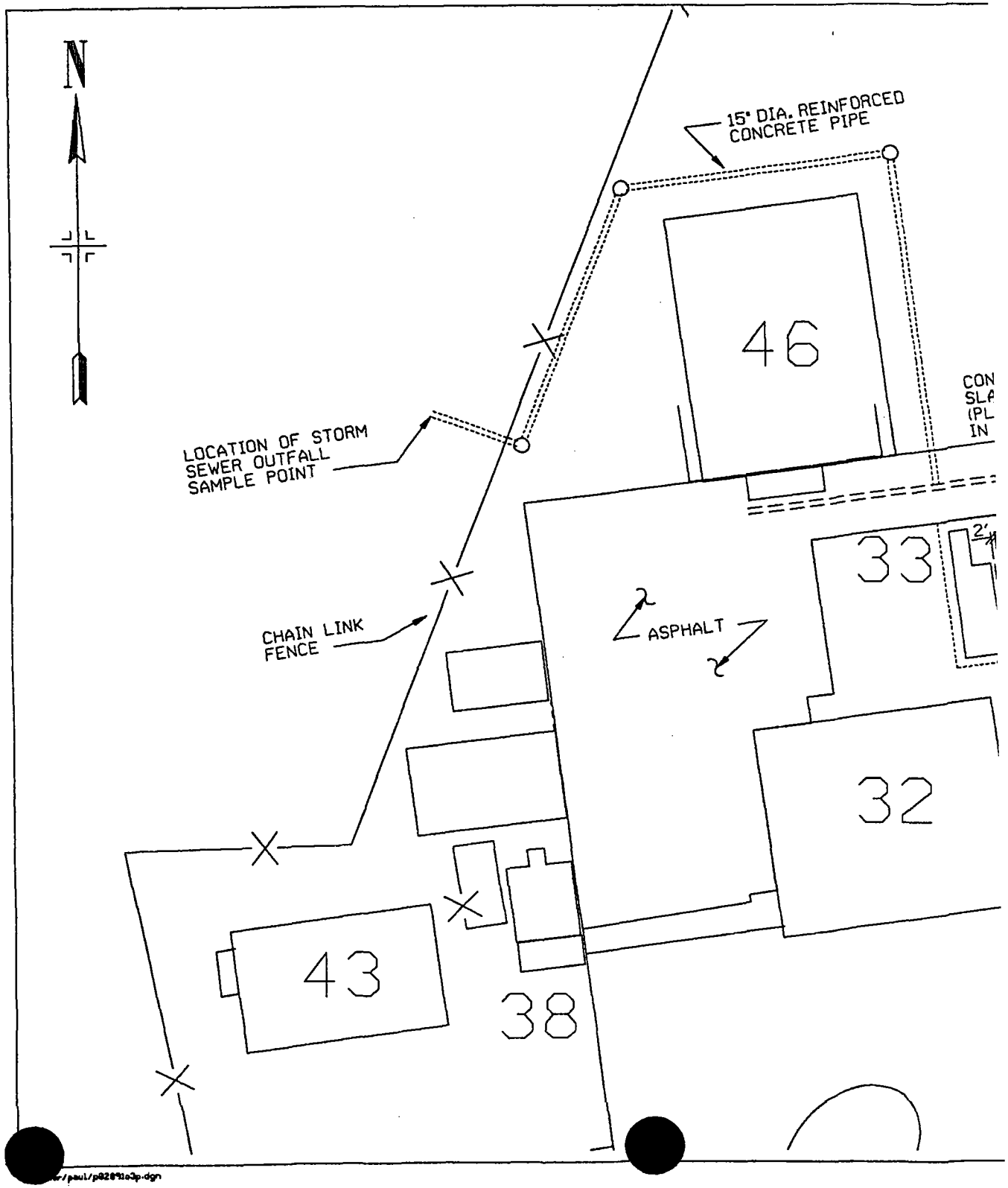
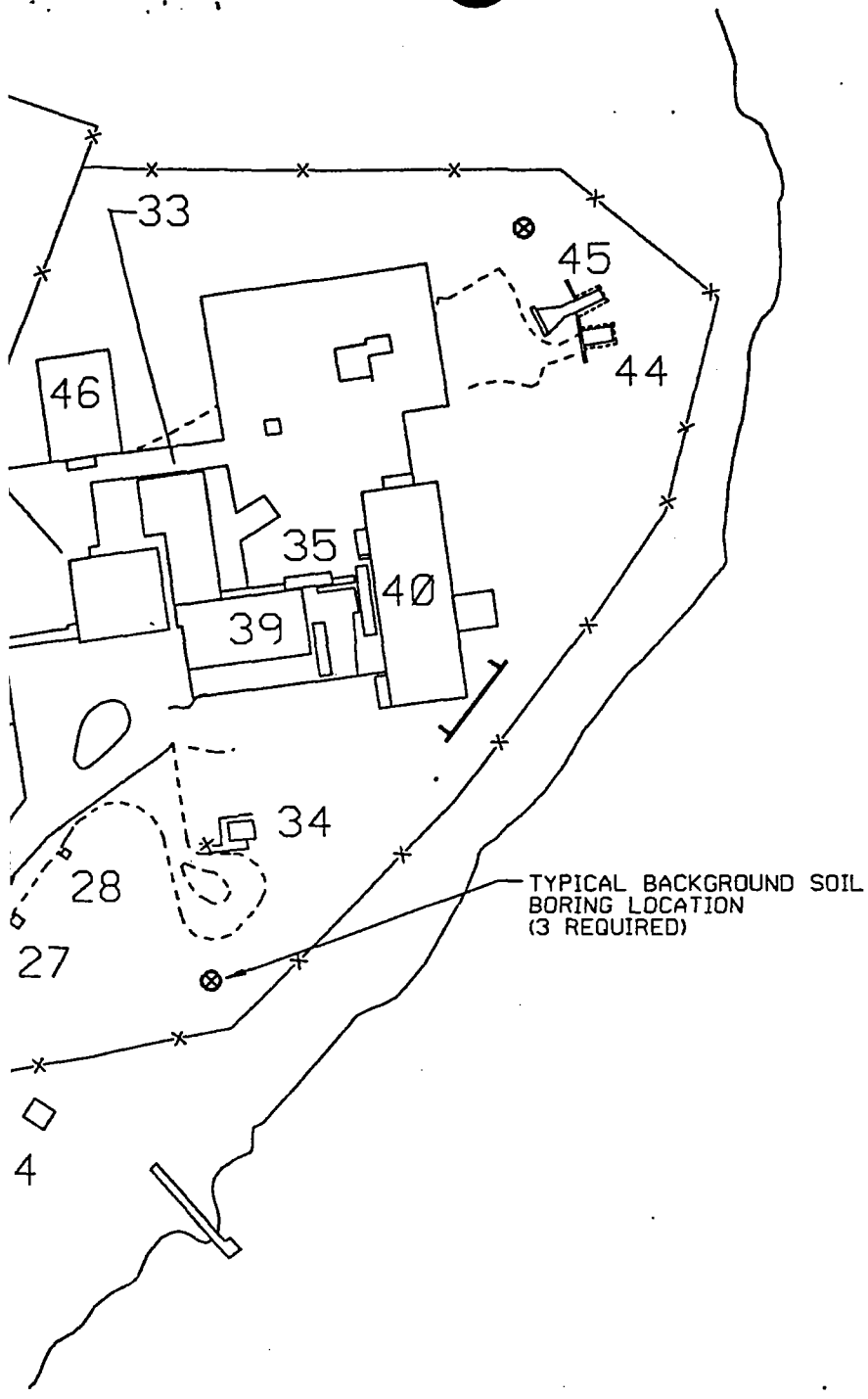
ROCK ISLAND ARSENAL
DIRECTORATE OF ENGINEERING & HOUSING
ENGINEERING & SERVICES BRANCH

HWMU CLOSURE BUILDING 33

SCALE: 1/8" = 1'-0"

17 DECEMBER 1990 SKETCH #2


N
15" DIA. REINFORCED CONCRETE PIPE
46
LOCATION OF STORM SEWER OUTFALL SAMPLE POINT
CHAIN LINK FENCE
ASPHALT
33
32
43
38



ROCK ISLAND ARSENAL
DIRECTORATE OF ENGINEERING & HOUSING
ENGINEERING & SERVICES BRANCH

HWMU CLOSURE
BUILDING 33

SCALE : 1" = 100'
50 0 50 100

17 DECEMBER 1990 SKETCH #4

Daily & Associates, Engineers, Inc.
3716 W. Brighton Avenue • Peoria, Illinois 61615
(309) 691-5300 • FAX (309) 691-1892

April 18, 1991

Department of the Army
Rock Island Arsenal
Rock Island, IL 61299-5000

Attn: Mrs. Barb Foley
SMCRI-CTI

Re: Soil Testing Services
HWHU Site Closure

Dear Mrs. Foley:

This letter is written in response to your request for a quotation for soil testing services for the HWHU site at Building 33. We propose to provide the services as outlined in your revised scope of work dated March 29, 1991 at a cost not to exceed $19,700. This cost is distributed approximately as follows:

Laboratory Analyses (9 samples)	$ 6,700
Soil Borings (8 borings to bedrock)	5,300
Personnel:	
Lab Field - Labor & Expenses	1,800
Engr. Field - Labor & Expenses	2,200
Engr. Office - Labor & Expenses	3,700
TOTAL	$19,700

We anticipate the soil borings/samples would be taken by June 30, 1991, Laboratory analyses completed by July 31, 1991 and the summary report by August 31, 1991.

One deviation from the statement of work is recommended. Borings would be continued to bedrock with periodic samples taken vertically at intervals alternating split spoon with shelby tubes. This way, a sample taken from the split spoon could be used in the field to determine if a shelby tube near that depth should be submitted for analyses. We feel a single shelby tube sample near the surface at each boring location is inadequate to detect volatile organic hydrocarbon contamination at mid-depth or near the water table. This change would allow us to better assess if contamination has occurred than can be accomplished with a single sample near surface sample.

The above quoted price is based on a single sample analysis per sampling location. Should additional sample analyses be indicated by field work, we would advise you for concurrence and consideration of the appropriate contract modification. The approximate analyses cost for a complete set of parameters is $720.

Should you have any questions concerning this matter, please feel free to call me at your convenience.

Very truly yours,

DAILY & ASSOCIATES, ENGINEERS, INC.

Stanley S. Bersin, P.E.

SSB:sku

Enclosures: Contractor Certifications

xc: Dr. William Shore

SMALL BUSINESS CONCERN REPRESENTATION (MAY 1986) (FAR 52.219-1)

The offeror represents and certifies as part of its offer that it ( ) is, (X) is not a small business concern and that ( ) all, (X) not all end items to be furnished will be manufactured or produced by a small business concern in the United States, its territories or possessions, Puerto Rico, or the Trust Territory of the Pacific Islands. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the size standards in this solicitation. (End of provision)

PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (APR 1984) (FAR 52.222-22)

The offeror represents that

(a) It (X) has, ( ) has not participated in a previous contract or subcontract subject either to the Equal Opportunity Clause of this solicitation, the clause originally contained in Section 310 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114;

(b) It (X) has, ( ) has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

AFFIRMATIVE ACTION COMPLIANCE (APR 1984) (FAR 52.222-25)

The offeror represents that

(a) It (X) has developed and has on file, ( ) has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2) or

(b) It ( ) has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of provision)

Stanley S. Bersin, P.E.
Vice President

USEPA

Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

217/782-6762

Log No. C-554
Received: July 30, 1990

Refer to: 1618130001 -- Rock Island
Rock Island Arsenal
IL5210021833
RCRA-Closure

October 26, 1990

Commander Rock Island Arsenal
Attn: SM CRI-SEM (Dr. William Shore)
Rock Island Arsenal, Illinois 61299-5000

Dear Dr. Shore:

The closure plan submitted by Rock Island Arsenal has been reviewed by this Agency. Your partial closure plan to close the hazardous waste container (S01) storage area is hereby approved subject to the following conditions and modification.

1. Closure activities must be completed by May 1, 1991. When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. This certification must be received at this Agency within sixty (60) days after closure, or by July 1, 1991.

   The attached closure certification form must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the units approved for closure herein until the Agency approves the facility's closure certification.

   The Illinois Professional Engineering Act (Ill. Rev. Stat., Ch. 111, par. 5101 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act (par. 5101, Sec. 1). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

   Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

RI (6)

As part of the closure certification, to document the closure activities at your facility, please submit a Closure Documentation Report which includes:

a. The volume of waste and waste residue removed. The term waste includes wastes resulting from decontamination activities.

b. A description of the method of waste handling and transport.

c. The waste manifest numbers.

d. Copies of the waste manifests.

e. A description of the sampling and analytical methods used including sample preservation methods and chain-of-custody information.

f. A chronological summary of closure activities and the cost involved.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. Tests performed, methods and results.

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Agency by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #24
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

2. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code, Section 725.211, the Agency reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.

3. The portion of the closure plan addressing the removal of contaminated soil is not adequate. If contamination is detected, the Agency must be notified in writing within fifteen (15) days. A revised closure plan addressing remediation of the contamination detected must be submitted within timeframes established by the Agency. This modification shall clearly define how the soil will be removed, stored, treated (if applicable), loaded, and how it will be managed once it leaves the property.

4. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

5. The concrete surfaces shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. If analysis of the wash or rinse water samples detect the presence of F001 constituents above the constituent's PQL identified in SW-846 (Third Edition), then that material must be managed as a hazardous waste. If the wash or rinse water samples exhibit a characteristic of hazardous waste then that material must be managed as a hazardous waste. In any event the material must be managed as a special waste. Wipe samples of the surface of the storage area are not required.

6. A minimum of ten (10) background sampling locations must be selected in order to establish background levels. These locations must be chosen from areas not affected by the facility's operations. Samples from these locations must be taken from similar depths and horizon materials of the potentially contaminated area.

   If groundwater is encountered, groundwater samples shall be collected as described in the closure plan with the exception of the use of the polyethylene bailer. Teflon bailers shall be used to collect the samples. Soil samples from the locations specified in the closure plan shall be obtained from the 6 to 12 inch interval, the 18 to 24 inch interval and the 36-42 inch interval. From this point down samples shall be obtained as described in the closure plan. The soil sample of the storm sewer outfall shall be obtained from the surface to a depth of 6 inches and from the 18 to 24 inch interval.

   Two additional samples shall be obtained from beneath the cracks along the eastern edge of the storage area. These cracks are parallel to each other and run towards the east north east. If the cracks slope away from the storage area, additional soil samples shall be obtained at their low points. These samples shall be collected at the 6 to 12 inch interval, the 18-24 inch interval, the 36 to 42 inch interval and shall continue at one foot intervals to a minimum of 6 inches below the soil/backfill interface. These borings may continue to bedrock as described in the closure plan if it is desirable.

The placement of the drill cuttings into the soil boring holes is not allowed. These cuttings shall be collected and handled as hazardous waste until they are determined to be otherwise. The boring holes shall be backfilled with a cement-bentonite grout.

7. All samples shall be analyzed for the following:

   - Volatile organics (Method 8240)
   - Semi-volatile organics (Method 8270)
   - Arsenic
   - Barium
   - Cadmium
   - Chromium
   - Lead
   - Mercury
   - Selenium
   - Nitrate/Nitrite

   Note: The Toxicity Characteristic Leaching Procedure (TCLP) shall be run for any metal and/or organic constituents for which the total levels exceed the regulatory levels defined in 35 IAC 721.124.

   All samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846 and Attachment 1 of this approval letter. Field screening shall not be performed on samples which will be sent to the laboratory for analysis. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter in the latest edition of SW-846. For inorganic parameters, the detection limit must be at least as low as the RCRA Groundwater Detection Limits, as referenced in SW-846 (Third Edition) Volume 1A, pages TWO-29 and TWO-30, Table 2-15. If possible, your sampling program should be extensive enough to determine the lateral and vertical extent of contamination to the detection limit (PQLs) referenced above.

8. The clean-up objectives proposed in the closure plan submittal are not approved. The Agency will establish clean-up objectives to be used to determine if "clean" closure (closure by removal) has been achieved upon receipt and review of the sampling and analytical results required in the approved closure plan. These sampling and analytical results along with a proposalfor site specific clean-up objectives (if you wish to propose them) must

be submitted to this Agency by February 1, 1991. Along with the analytical results submit the following:

- The test methods used and detection limits achieved.
- The depth and interval of samples taken.
- A description of the soil sampling procedures and sample preservation/chain of custody methods.
- An accurate scaled drawing showing the location of the samples obtained, and the associated unit(s).
- A completed Certification Regarding Potential Releases from Solid Waste Management Units (Attachment 2).

9. 35 IAC 721.131 F001 through F005 wastes must be disposed in accordance with 35 IAC Part 728.

10. To avoid creating another regulated storage unit during closure, obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated material on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated material in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

11. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

12. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Agency by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. Additional information and appropriate report forms may be obtained from the Agency by contacting:

    Administrative Compliance Unit
    Division of Land Pollution Control
    Illinois Environmental Protection Agency
    P.O. Box 19276
    Springfield, Illinois 62794-9276

Should you have any questions regarding this matter, please contact Kevin D. Lesko at .

Very truly yours,

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

LWE:KDL:rmi/3582n/50-55

Attachment

cc: Peoria Region
Division File - RCRA Closure
Daily & Associates, Engineers, Inc., P.E.
USEPA Region V -- George Hamper
Enforcement

Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

ATTACHMENT

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

Closure Log C-554

The hazardous waste management SOl unit at the facility described in this document has been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number

Facility Name

Signature of Owner/Operator

Name and Title

Signature of Registered P.E.

Name of Registered P.E. and Illinois Registration Number

Date

KDL:rmi/3582n/56

Illinois Environmental Protection Agency · P.O. Box 19276, Springfield, IL 62794-9276

ATTACHMENT 1

Soil Volatile Sampling Procedures

Procedure:

A. PREPARATION AND DECONTAMINATION OF CHEMICALLY INERT METAL SOIL SAMPLER (i.e. STAINLESS STEEL, BRASS, BRONZE, COPPER, etc.)

*1. Wash tubing or sampler with hot water and a nonfoaming detergent.

2. Rinse with hot water.

*3. Rinse with a pesticide grade solvent, such as hexane.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized water.

6. Store the sampler in aluminum foil until ready for use.

*Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated and chemically inert metal steel sampler (refer to preparation and decontamination instructions), take a core sample of soil.

2. Add additional clay to the ends of the sample, if necessary, to eliminate head space. DO NOT remove sample from sample tube in the field. The laboratory should remove the sample from the sampling tube.

3. Cover both ends of the sampler with aluminum foil. Cover the aluminum foil with a plastic cap, such as a thread protector.

4. Put the sample on ice immediately.

5. Transport the samples to the laboratory as soon as possible. Most laboratories require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organic constituents cannot be composited because of the volatilization which would result from any compositing method.

Attachment 2

CERTIFICATION REGARDING POTENTIAL RELEASES FROM
SOLID WASTE MANAGEMENT UNITS
(CLOSURE PLAN REVIEW)

FACILITY NAME: _____

EPA I.D. NUMBER: _____

LOCATION CITY: _____

STATE: _____

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART A APPLICATION and in your closure plan.

	YES	NO
• Landfill	____	____
• Surface Impoundment	____	____
• Land Farm	____	____
• Waste Pile	____	____
• Incinerator	____	____
• Storage Tank (Above Ground)	____	____
• Storage Tank (Underground)	____	____
• Container Storage Area	____	____
• Injection Wells	____	____
• Wastewater Treatment Units	____	____
• Transfer Stations	____	____
• Waste Recycling Operations	____	____
• Waste Treatment, Detoxification	____	____
• Other _____	____	____

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

_____

_____

_____

_____

_____

NOTE: Hazardous waste are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part A application and in your closure plan, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the part or still be occurring.

   Please provide the following information

   a. Date of release
   b. Type of waste released
   c. Quantity or volume of waste released
   d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C 6902 et seq. and 40 CFR 270.11(d))

_____
Typed Name and Title

_____ _____
Signature Date

DEPARTMENT OF THE ARMY
ROCK ISLAND ARSENAL
ROCK ISLAND, ILLINOIS 61299-5000

July 27, 1990

REPLY TO
ATTENTION OF

SMCRI-CO

Ms. Becky Lockart
Planning and Reporting Section
Illinois Environmental Protection Agency
2200 Churchill Road
P.O. Box 19276
Springfield, Illinois 62794-9276

Dear Ms. Lockart:

The purpose of this letter is to submit the closure plan for building 33 as required in the IEPA letter of June 19, 1990. As agreed in a telephone conversation with Mr. Charlie Zeal on June 20, 1990, the delay in our response is acceptable to the IEPA.

The closure plan, prepared in conjunction with Daily and Associates Engineers, is enclosed.

Questions may be referred to the Environmental Coordinator, Dr. William Shore, (309) 782-7855/7856.

Sincerely,

Richard W. Bregard
Colonel, U.S. Army
Commanding

Enclosure

RECEIVED
JUL 30 1990
IEPA-DLPC

RI-15